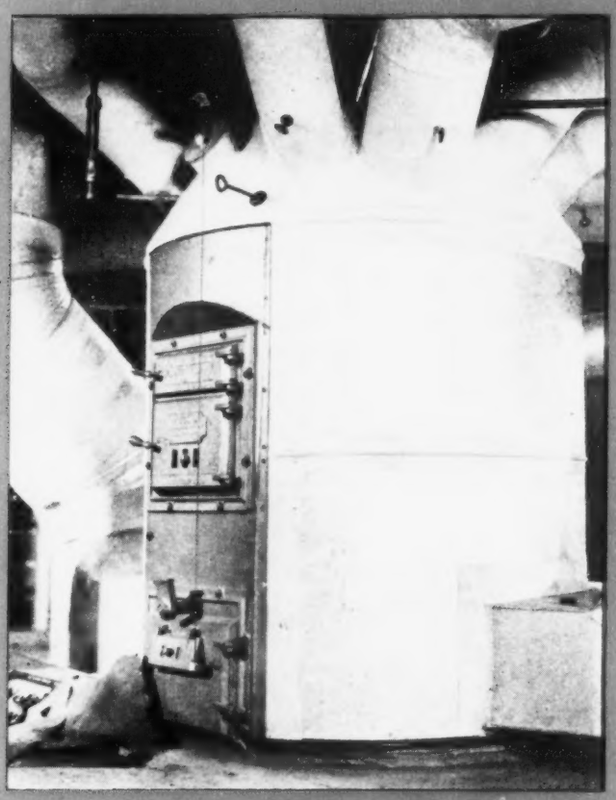
AMERICAN ARTISAN

JUNE
1942



RESIDENTIAL AIR CONDITIONING
RM AIR HEATING • SHEET METAL CONTRACTING

ESTABLISHED
1880

Look to

the Proven Advantages of CENTURY MOTORS

For Modern Air Conditioning Jobs

★ For industrial war production, for hospital installations, army and navy requirements, public works, etc., there's no time to waste in experimentation. To be safe, to give every aid to the War Effort, you must depend upon proven products.

That's why it will save you time and trouble to specify Century Motors — for Century has worked long and closely with the entire air conditioning industry — and Century Motors are especially engineered to meet the demands of these specialized applications.

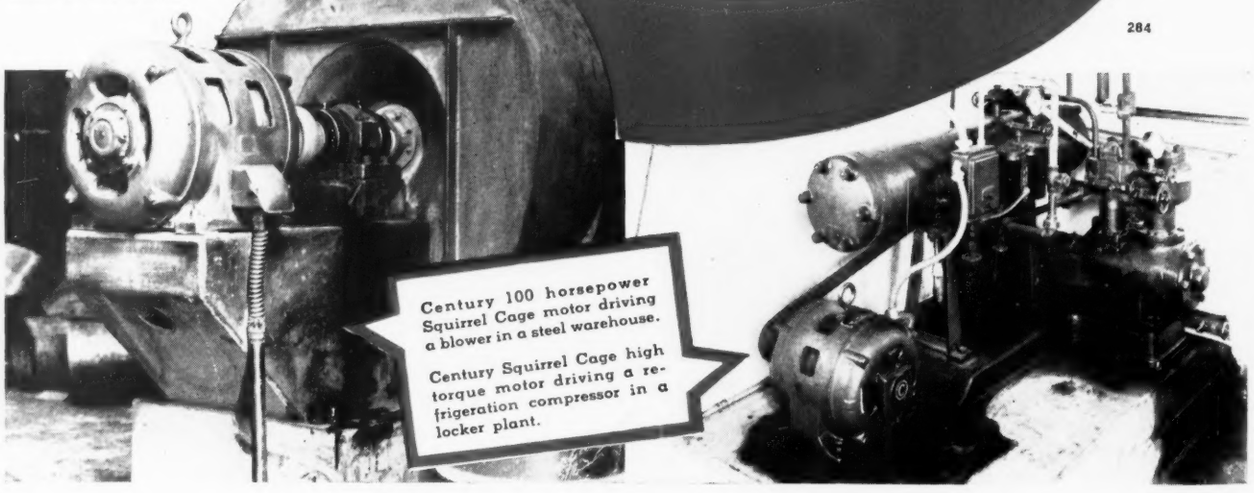
Century Motors provide high starting torque with low starting current, resulting in the least disturbance to already heavily loaded lines; high break-away torque with which to start the modern compressor. In fact, for jobs involving air cooling, heating, ventilating, or fluid pumping, you'll find the correct Century Motor among the hundreds of types and sizes in the complete Century line.

Your nearest Century Motor Specialist can give you valuable help on correct motor application. Get in touch with him today.

Century MOTORS

CENTURY ELECTRIC COMPANY
1806 Pine Street St. Louis, Missouri
Offices and Stock Points in Principal Cities

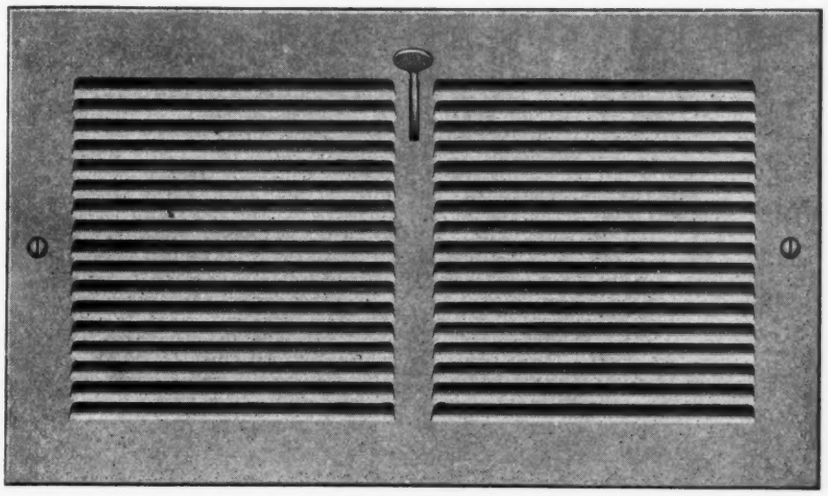
One of the Largest Exclusive Motor and Generator Manufacturers in the World.



Century 100 horsepower Squirrel Cage motor driving a blower in a steel warehouse.

Century Squirrel Cage high torque motor driving a refrigeration compressor in a locker plant.

284



No. 7032



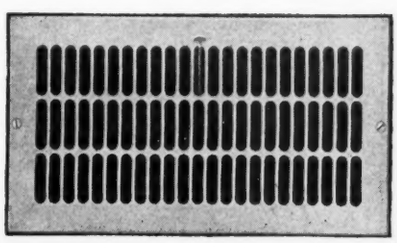
This is the REGISTER FOR LOW-COST HOUSES

Auer

The Auer Airo-Flex "7000" Series Register fits the requirements of today's small home market, and is being widely used in this field.

- It has the downward directional flow so efficient for warm-air systems.
- It has simple attractive design—ample open area.
- It is low in cost for a register of this quality.

The "7000" Model has a one-piece face with bendable fins and single shut-off louvre. It can also be supplied with multi-louvre adjustable vertical back-blades for any desired lateral diffusion. It is furnished for all wall and baseboard needs, and also for cold air intakes. A practical, substantial register that keeps down costs—and assures efficient service.



No. 6032 Classic Register

Auer has long specialized in the small home market and has several other inexpensive designs—such as Heat-Rite, Classic, and DuraBilt—which are also well adapted to warm-air use for low-cost homes.

Complete Auer Register Book—or Catalog "G" on flat metal grilles—sent on request.

THE AUER REGISTER CO., CLEVELAND, O.
3608 Payne Ave., Cleveland, Ohio

AUER REGISTERS & GRILLES · For Air Conditioning *and* Gravity

AMERICAN ARTISAN

WITH WHICH ARE MERGED

FURNACES and SHEET METALS

AND

Warm-Air Heating

Covering All Activities in Residential Air Conditioning and Small Commercial Cooling, Warm Air Heating, Sheet Metal Contracting and Fabricating

J. D. Wilder, Editor — A. A. Kennedy, Assistant Editor

Vol. 111, No. 6 — June, 1942 — Founded 1880

CONTENTS

Repair and Maintenance Must Keep Us Going 19
L-79 (The Freeze Order) Has Been Amended 20
New House Construction for the Next 6 Months 22
On Our Industry's Front 24
Stock Control Is Highly Necessary Today 61
Association Activities 64
New Products 66
New Literature 72
With the Manufacturers 75

THE RESIDENTIAL AIR CONDITIONING SECTION

Recommended Simplified Pipe and Fittings Code 29
58 Pounds of Duct Work (Defense House Heating) 36
Evaporative Cooling in a Funeral Home 38
Earth-Floor Cold Air Plenums (Part 3) 41
A Slide Rule Heat Loss Calculation 44

THE SHEET METAL SECTION

Welding Light Gauge Galvanized Iron 47
Fabricating War Products (Cabinet and Bench) 50
Air Conditioning Equipment Fire Standards 52
Wilder Specializes in Items for Bakers 56

In This Issue

GOOD news for our industry! Up to now the whole aim of Washington agencies seemingly has been to make it tougher and tougher for us to do business.

◆

Now we are told that so far as new orders and regulations are concerned we are over the hill!

◆

From now on — unless drastic changes in Washington thinking occurs—the aim will be to relax our present strictures so that our industry can stay in business; can fulfill the essential civilian demands we are expected to satisfy; can do our part with less and less red tape; and, finally, where orders are found to be stricter than necessary we may expect some measures of relief.

◆

The outstanding example of this new change is published on page 20 where we report the amendments to L-79 (the freeze heating order). We also suggest a careful reading of our analysis of this order—because it is what isn't said in the order which gives us our relief.

◆

In keeping with events we are changing our department (Defense Developments) to a new title—On Our Industry's Front.

◆

We believe this is more appropriate. This is not a defensive war any longer. We are not preparing to defend ourselves. We are not going to wait for the enemy to come to us. And our industry—as is every other industry—is now moving to carry the fight to the enemy.

◆

Therefore what we are doing is a "front"—just as much a front as the battle lines. The orders, regulations, laws which control our operations are now just like the orders the private gets from his company commander.

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More than 8,000 copies of this issue are being distributed



One of our boys on furlough drops in the other day. He looks like an Olympic champ. "Army life ain't done you any harm, Herb," I tell him, "but wait till they put you on K.P." Herb grins. "I been on K.P. already," he comes back, "an' it's a cinch for anybody that knows how to wash dishes."

"You bein' an expert," I says, "come an' take a gander at some Monel sinks for the Army." Over to Acme Sheet Metal we see half a dozen jobs like the one below. Herb looks kind of puzzled. "We didn't have sinks like that," he says. "Which isn't surprisin'," I cuts in, "because these are for washin' lithograph plates!"

The lithograph plates, by the way, are for makin' army an' navy maps. It takes acid solution to wash 'em instead of soap an' water. So these tanks are made of Monel, the best kind of metal for a job like that. The boss tells us they're electric welded throughout . . . usin' 130X Monel Metal Arc Weldin' rod.

Another job in the same shop is the Anesthetic Classifier, including tray, cover and screens. It was made for a manufacturer that supplies novocaine to army hospitals an' First Aid Stations. The screens are 20, 30 an' 80 mesh Monel screen cloth in Monel frames, for sorting out different size crystals. Monel was used to make sure there'd be no contamination of the anesthetics.

One kind of job that's a good bet right now is re-buildin' picklin' baskets. Brass, steel an' other metals used in all kinds of war production have to be pickled, an' nothin' stands up in the acid like Monel. It's still sound after years of use and you'll have no trouble re-building crates an' baskets to suit the user.

By this time perhaps you've got a line on where to get sheet metal contracts for war work. If not, drop me a line an' I'll see what I can do to help. An' when you get the orders,

Keep 'em flowin',

Tim Shears

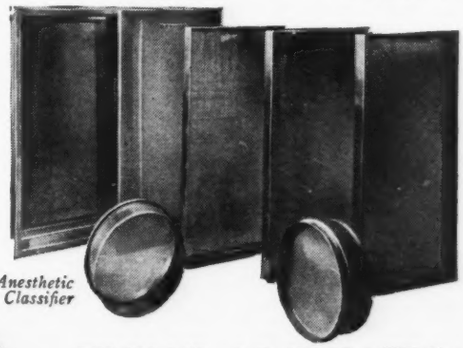
THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York, N. Y.



(Left) *Lithograph Plate Washing Tank*



Pickling Baskets



Anesthetic Classifier

INCO *Nickel Alloys in the War Effort.* With the Nation at war, every pound of Nickel, Monel and Inconel that expanded facilties can produce is urgently needed for vessels of the Navy, mechanical and chemical equipment for the Army, vital parts of Aircraft, and for Chemical, Petroleum, Steel and other essential industries. As part of the all-out war effort the International Nickel Company will continue to report for the benefit of such users information concerning the selection, fabricaton and use of Nickel and Nickel Alloys.

"FOR WANT OF A NAIL"

...the shoe—,

the horse—,

the rider—,

the battle was lost!



● But, our fighting men will not "want." We will give them the weapons for victory *now.* It calls for a greater stream of production than American Industry has ever before envisioned.

This means that we have got to *save what we have*... make it serve efficiently... and make it last... so there will be materials for planes, tanks, ships, guns and shells.

It means that *conservation* is the biggest word in the heating industry today. Military and essential defense housing will take available new equipment. To protect the health and sustain the morale of our civilian population calls for alert, intelligent servicing of existing heating plants.

Here is a challenge to your patriotism... and to your foresight. For the dealers and service men who do this job today will be the ones who capitalize on the tremendous post-war demand. It means business for you now—*profitable* service business—and a bigger opportunity in the days to come.

IT'S UP TO YOU TO SAVE THE HEATING PLANTS OF AMERICA, NOW!

Make a survey in your territory. Urge upon owners the importance of action now, to get necessary parts, to make heating plants ready for efficient service next fall. Your survey will develop business for the present—and prospects for the future.

● CLEAN AND OVERHAUL

A *thorough* cleaning means more efficient operation, will reveal the necessity for any repairs which should be made now, to prevent a possible breakdown during the heating season. This is your most logical point of contact with the owner.

● REPAIR AND RECONDITION

Use your ingenuity and skill to make present equipment operate as efficiently as possible. Remember, every pound of material, every man-hour of productive labor you save helps the men who are hammering out the victory—on land and sea and in the air.

● REPLACE, WHEN NECESSARY

Priority regulations enable the replacement of parts and accessories which cannot be made to function properly. For automatic heating equipment Penn is prepared to supply, under the established rules, the controls which may be needed for efficient, economical operation of the system.

Conserve for Victory! *Penn Electric Switch Co., Goshen, Indiana.*



H&C

HOLLAND, MICH. PLANT
238,750 Sq. Feet of floor Space

AT YOUR SERVICE

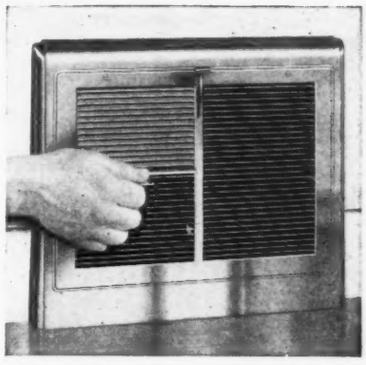
for Any Project .. Large or Small



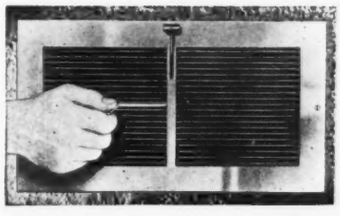
Unmatched Facilities for Register Research and Manufacture

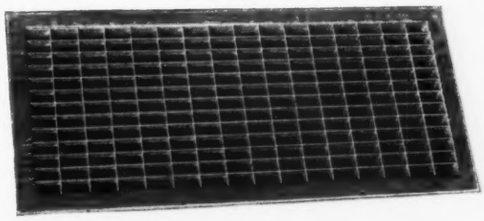
Wartime housing must be completed on schedule. Unmatched facilities for register manufacture enable H&C to give you registers which are superior in design and construction, superior in workmanship and finish — in a hurry. For over 40 years H&C have been America's leading manufacturer of grilles, registers, and furnace accessories. Tie in with the leaders. It will help you to get a larger share of the available business.

Right: NO. 130 BASEBOARD REGISTER. The ACE of Gravity Registers and also first choice when converting existing gravity systems to Air Conditioning.



Right: NO. 741 SIDEWALL REGISTER. A very inexpensive Air Conditioning Register that's quality-built throughout. Has single-shutter, positive valve.





Left: NO. 265 "NO-FLEX" RETURN AIR FACE. Exceptionally sturdy, trim and attractive. Matches in appearance No. 210 "NO-FLEX" Floor Register.

HART & COOLEY MANUFACTURING CO.

Warm Air Registers • Air Conditioning Grilles • Damper Regulator Sets • Dampers • Chain • Pulleys

HOLLAND H&C MICHIGAN

Chicago Office: 61 W. Kinzie St. Philadelphia Office: 1600 Arch St.

Western Representatives: Godfrey Rueger Co., Los Angeles, San Francisco, Portland, Seattle, Salt Lake City, Denver

HELPING MONCRIEF DEALERS DO THEIR PART...



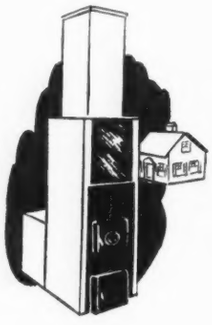
MONCRIEF NO. 16
Forced Air Furnace

Cast unit with dome radiator.

60,000 Btu. capacity. Very compact. Electric blower gives forced air circulation. Attractively finished. Priced at rock bottom.



WE HAVE only one job to do now—win this war. No matter what our inclination may be, all of us must devote ourselves wholeheartedly to work for victory. Nothing short of an all-out effort will do. We have therefore enlisted our facilities to the extent they may be needed for the duration to produce for war needs.



MONCRIEF Furnaces for replacements and furnaces specially designed for defense houses are still available on priority orders. These units meet all present-day needs in sizes, prices and efficiencies. We are in position to help Moncrief Dealers serve the requirements of the home front.



THE MAN WORKING in defense industry, with his family, must be kept warm and comfortable. We are planning and expecting to supply repair parts to Moncrief Dealers throughout the year so that existing Moncrief Furnaces may be kept in serviceable condition during the emergency.

DEPEND ON IT, we shall continue to do everything possible within existing limitations to serve Moncrief dealers.

THE HENRY FURNACE & FOUNDRY CO.

3473 East 49th Street **Cleveland, Ohio**

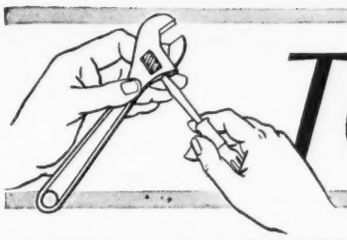




MONCRIEF SERIES C CAST FURNACES

18", 20", 22", and 24" sizes.

Modern design and top quality in every particular. High efficiency and long time service assured.



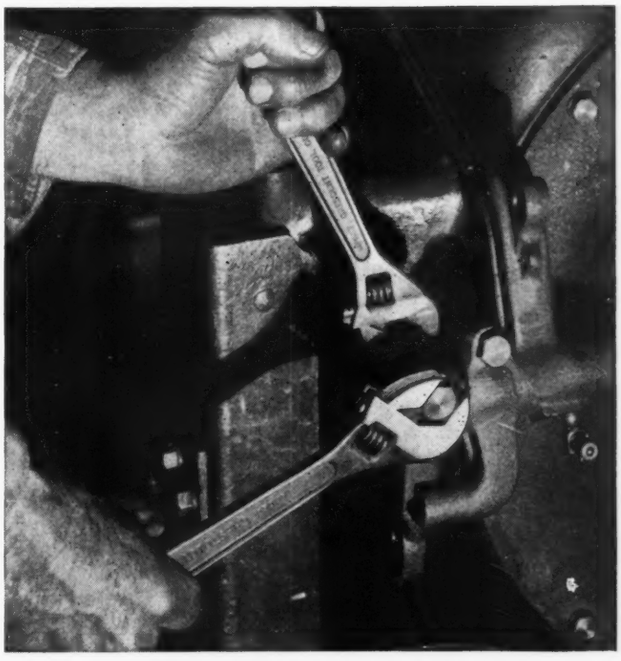
TOOL NOTES

Maintenance and Repair Suggestions to Prolong Tool Life

No. 1 HOW TO KEEP CRESCENT WRENCHES IN GOOD WORKING ORDER

● **Regardless of war or shortages, a good mechanic always keeps his tools in excellent shape. Today, however, difficulty of replacement is perhaps the strongest argument for tool conservation. This is the first in a series of informative advertisements intended to help you make your "Crescent" and "Crestoloy" Tools last longer. Look for "TOOL NOTES" regularly.**

With adjustable wrenches, as with most tools, abuse and neglect are the commonest cause of failure. Keep your wrenches clean . . . and oiled. Dirt or rust accumulations on the knurl or other moving part will make adjustment difficult. Don't use your wrench as a hammer . . . and don't hammer on the handle to start or "set" a nut. Never "overload" any tool. The handle length of your wrench is carefully computed to provide safe leverage at maximum opening. If you extend the handle length with a piece of pipe or tubing you are taking chances with most wrenches. The 15", 18" and 24" sizes of "Crestoloy" Wrenches (with tapered handles) have sufficient strength, however, to permit this practice.



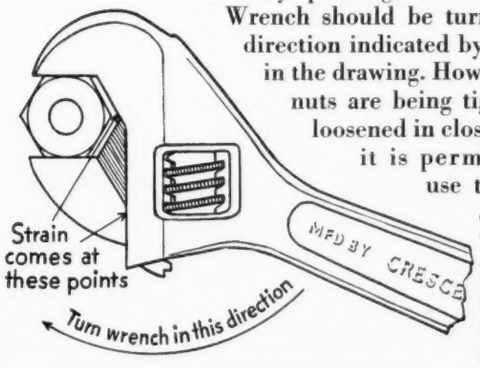
REPAIR PARTS AVAILABLE



Broken wrenches can be repaired with these Crescent Parts, sold by hardware dealers. Ask for part by name, stating the size of your wrench and whether "Crescent" or "Crestoloy" as marked on handle. Be sure to replace knurl same end to as removed, or teeth will not line up.



USE YOUR WRENCH CORRECTLY



Generally speaking, the CRESCENT Wrench should be turned in the direction indicated by the arrow in the drawing. However, when nuts are being tightened or loosened in close quarters, it is permissable to use the wrench either way. That is why the jaws are at an angle to the handle. Main point to remember is to have the jaws TIGHT upon the nut being turned. If this precaution is observed, the wrench will not slip and a good, hard pull can be exerted without fear of bruised knuckles or skinned fingers.

CRESCENT TOOLS

Give Wings to Work

CRESCENT TOOL COMPANY, JAMESTOWN, N. Y.

Lasting Ductwork brings warmth to Army trainees



Photo by U. S. Army Signal Corps

BETHLEHEM GALVANIZED STEEL SHEETS

In building the ducts, vents and stacks in the U. S. Army cantonment shown here, as in many another job of the kind, the sheet-metal contractor used Bethlehem Galvanized Steel Sheets because they have the easy-forming qualities that make for rapid, efficient sheet-metal work. Bethlehem Sheets, moreover, are protected from rust by a tight coating of pure zinc that stubbornly resists flaking and provides a tough defense. That means longer life for sheets and lasting ductwork to bring warmth to Army trainees.

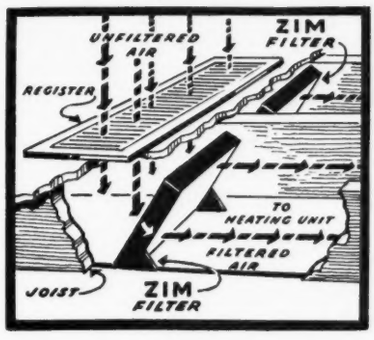
BETHLEHEM STEEL

BETHLEHEM STEEL COMPANY

NEVER BEFORE in the history of warm air heating a FILTER for GRAVITY systems that actually INCREASES air flow while filtering!



5 MINUTE INSTALLATION



In most cases, installation means merely lifting the cold air register, setting one or two Zims in place and replacing the grill. Where round cold air return pipes lead directly to the cold air register, installation takes about five minutes.

DON'T TAKE OUR WORD FOR IT . . .

The simplest way to test the accuracy of the statements made in this advertisement is to send for a sample Zim Filter and see for yourself. And the simplest way to sell them is on this same basis—that of, "Seeing is believing!" Send the coupon for your sample NOW, and get started on THE BIGGEST SALES POTENTIAL OFFERED THE HEATING FIELD SINCE THE ADVENT OF AUTOMATIC HEAT!

SEEING is BELIEVING

ZIM FILTER CO.
5231 HOHMAN AVE. HAMMOND, IND.

Here, at last, is the filter that the entire industry has been waiting for: a filter that does a real filtering job in a GRAVITY SYSTEM, yet DOESN'T cut down air flow. The Zim Filter, by actual tests in accredited Universities, definitely INCREASES air flow because it reduces turbulence. It helps reduce "whirls" and "eddies" of air, straightens out its path of travel and actually INCREASES its velocity!

Average Size Retails at $1.00
LASTS AN ENTIRE HEATING SEASON!

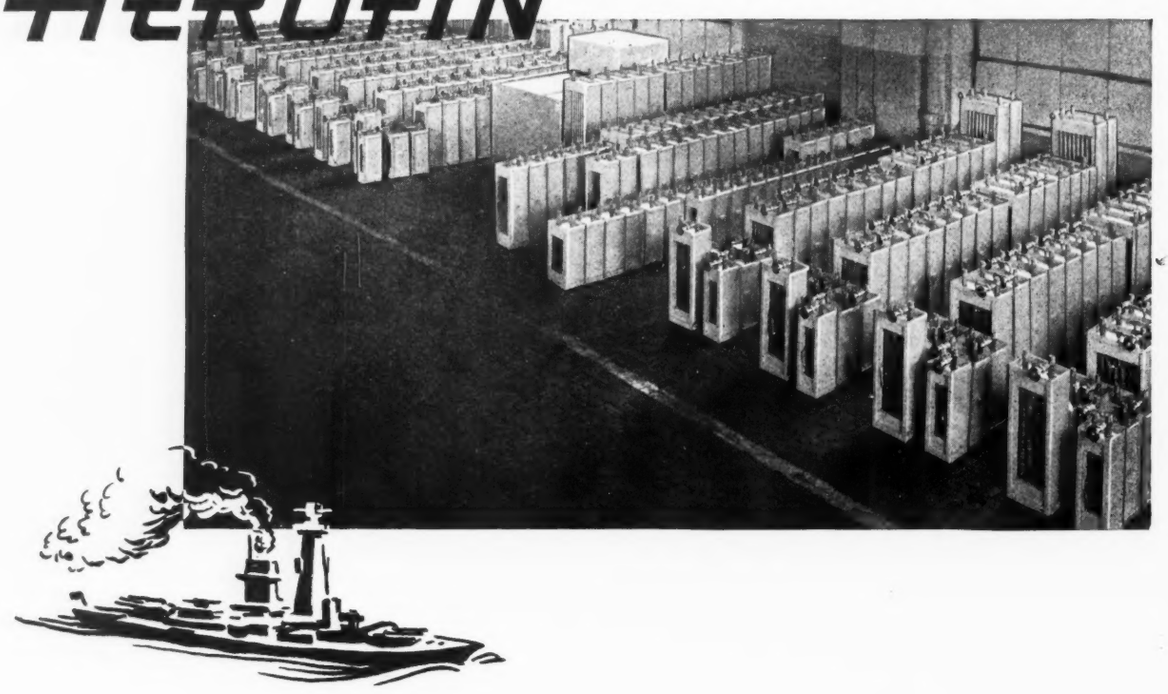
The 8" size Zim retails at 90c, the 10" size at $1.00, the 12" size at $1.10 and the 14" size at $1.20 (subject to change). Accumulated dirt (and you'll be amazed at the amount and at the speed at which it accumulates) may be shaken out of the Zim at 30 or 60 day intervals, so that the filters last an entire heating season.

Mail this COUPON Today!

Zim Filter Co.,
5231 Hohman Ave.,
Hammond, Ind.
Gentlemen: Please send me my free sample Zim Filter. (No obligation on my part.)

Name .....
Address .....
City ..... State .....
My Wholesaler is .....

AEROFIN



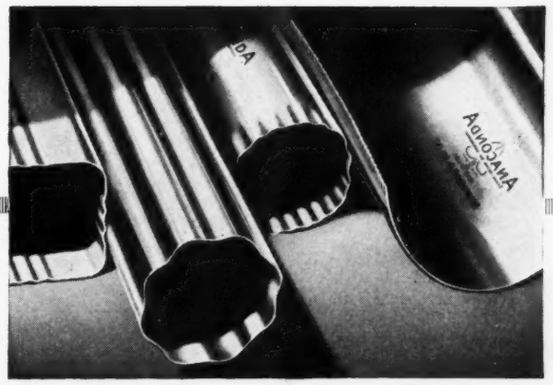
THEY DON'T NEED A FIREPLACE ON A CRUISER

★ These Aerofin heating coils are destined for U. S. Navy destroyers and cruisers—an assurance that officers and men will be warm under all conditions. Long life, durability under severe usage, exceptional efficiency, and instantaneous heat transfer are a few of the reasons why the Navy accepts Aerofin.

★ Although your heating requirements may not call for coils that meet Navy specifications, you can be sure of the same guarantee in ALL Aerofin coils. Before shipment, EVERY Aerofin heating coil is tested to 400 pounds of air under water, 1000 pounds hydrostatic—and guaranteed for 200 pounds of steam working pressure and 388° F. working temperature. For certainty in operation—specify AEROFIN.

AEROFIN CORPORATION
410 S. GEDDES ST., SYRACUSE, N. Y.

CHICAGO • DETROIT • NEW YORK • PHILADELPHIA • DALLAS • CLEVELAND • TORONTO



The sheet copper that might have been used for this metal work...

INSTEAD... Made Everdur Copper-Silicon Alloy for the Pilot House of this new Coast Guard Cutter



Everdur* got the call for this tough war task because it is strong, rust-proof and highly resistant to salt water corrosion. Because it is readily welded for the soundest type of construction. Because it is non-magnetic—won't affect the performance of vital pilot house instruments. These are some of the reasons why Everdur is in such great demand today—and why no copper is available for our buildings and homes.. 4235

*Trade-mark of The American Brass Company, Reg. U. S. Pat. Off.

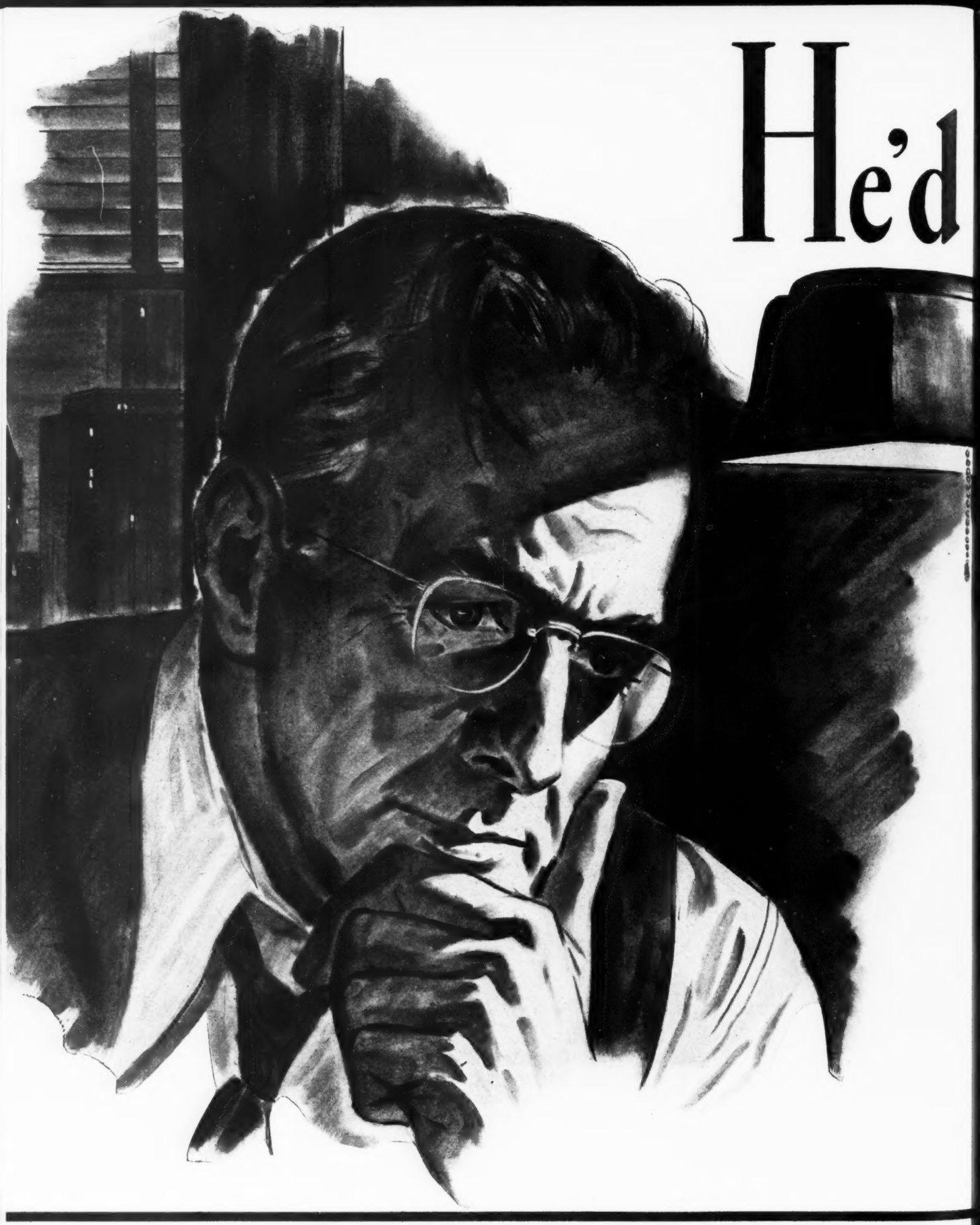
ANACONDA
from mine to consumer

FOR DEFENSE BUY UNITED STATES SAVINGS BONDS AND STAMPS

Anaconda Copper

THE AMERICAN BRASS COMPANY • General Offices: Waterbury, Connecticut

Subsidiary of Anaconda Copper Mining Company • In Canada: ANACONDA AM BRASS LTD., *New Toronto, Ontario*



REPUBLIC *Toncan*

An alloy of refined open-hearth iron, copper

even miss his dinner

for you

CALL YOUR REPUBLIC SHEET DISTRIBUTOR FIRST

Day or night, he's ready to help you keep jobs moving. For that's the way he has built his business.

But *Production for Victory* gets first call on steel—and tremendous tonnages of flat-rolled steel are needed for ships, tanks, trucks and other war items. Because of this, he may not be able to deliver all the sheets—Republic Steel, U-Loy* Copper-Bearing Steel, Enduro* Stainless Steel, Toncan* Iron, Taylor Roofing Ternes—that you want.

Nevertheless, he is working overtime to help you solve your problems. While it has made his job harder, it also has made his service more valuable now when you need it most. He's working long hours studying customer needs and analyzing available sheet stocks to find the solution. He's usually able to deliver a few sheets for repair work, or larger amounts for war projects. He'll make every effort to get more sheets for you. He often has other grades or sizes in stock that can be used.

His vast knowledge of sheet metal fabrication may help you. Ask him for the booklet, "How Toncan Iron Makes Money for Sheet Metal Contractors."

You've nothing to lose and a lot to gain by calling your Republic Distributor *first.* Give him all the facts on how you intend to use the materials you need—the class of job—the priority rating—for he needs all this information in order to give you prompt service. Republic Steel Corporation, General Offices, Cleveland, Ohio.

* Reg. U. S. Pat. Off.

REPUBLIC STEEL
PRODUCTION FOR VICTORY

Iron SHEETS

and molybdenum—*that grows old slowly*



ROAD CLOSED—DETOUR . . .

Temporarily, the business road which we all traveled and had come to take for granted is closed. For some, the going now is extremely rough but, to the everlasting credit of America, we are accepting this detour understandingly. Gratefully even, will this be done if we but stop a moment to compare our position with that of the folks in other countries.

To be sure, every new road requires that we pause long enough to get our bearings. But, make no mistake about it, the way we are taking requires far more speed than the old—speed in providing amply for our men who are today on the world-wide fighting fronts. That the countless items of armament so urgently needed are being produced in an ever-increasing flow is the only guarantee we can have that the old highway, now closed, will someday be reopened and ready again for our use.

* * * * *

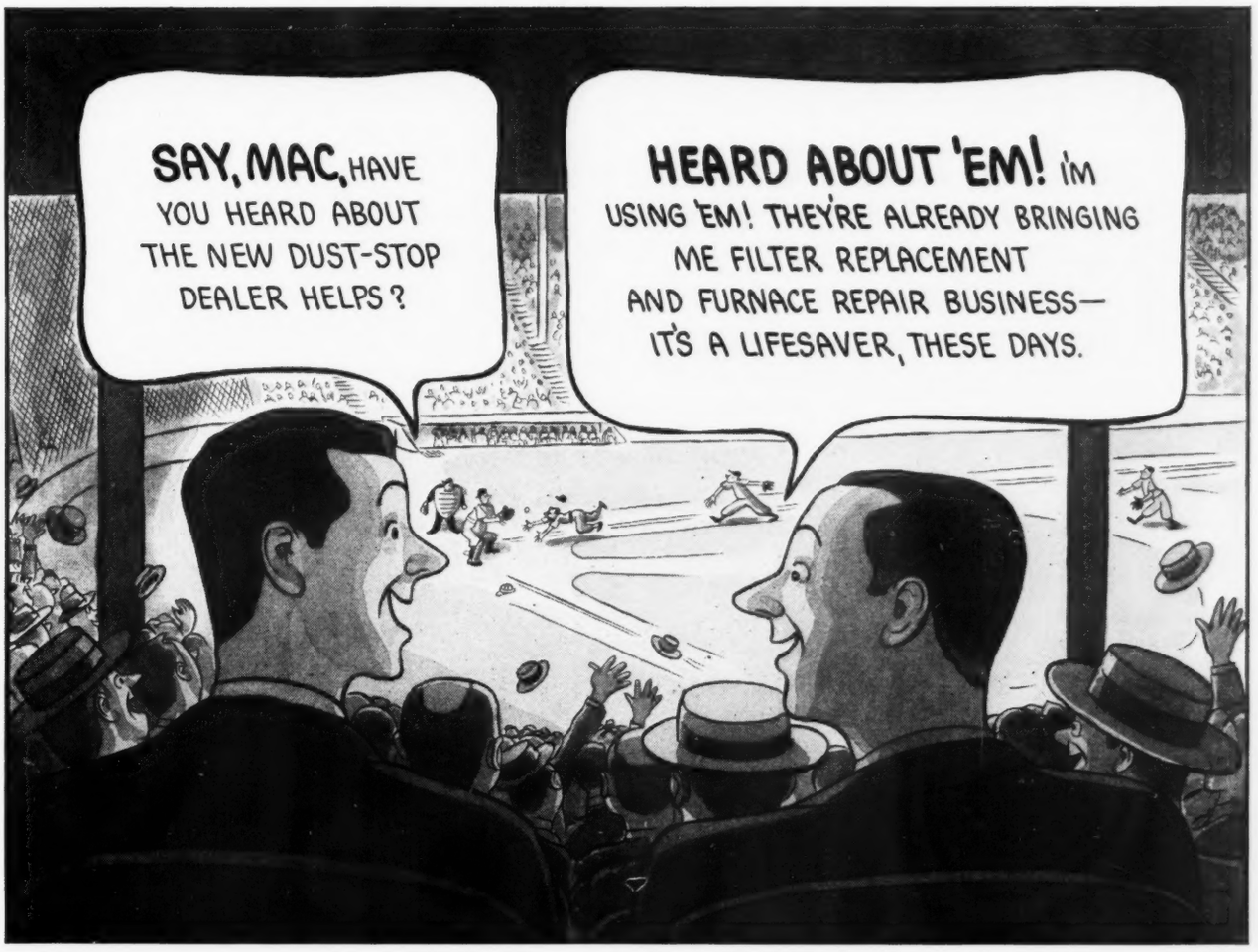
Adapting the sheet metal industry's skills and facilities to war work is well under way. Every day, more and more of our trade are receiving defense orders of one kind or another and OSBORN is doing its part in supplying these customers with the materials they need for this vital work. Thus, all of us are helping shorten the time it will take to travel the detour we all must make.

THE J. M. & L. A.
OSBORN Co
CLEVELAND, OHIO
BUFFALO • CINCINNATI • DETROIT
Manufacturers—Distributors of Metals and Metal Products

A DEPENDABLE SOURCE OF SUPPLY FOR 83 YEARS

Figurin' the Angles

◀ What Smart Furnace Dealers are Doing to Get More Business ▶



Dust-Stop's New 1942 Dealer Helps Soften Up Tough Going

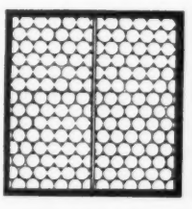
YOU'RE ON THE EDGE of the war effort —not in the middle of it like some fellows. And the going's tough. But look—

There's furnace cleaning and furnace repairing to do. There are filter replacement jobs to get. There's still business to be had and money to be made.

Take filter replacements, for instance: You can net up to $2 to $3 a year on every warm-air furnace you service. Filter business also helps you get your foot in the door for repair work and check-up service. With fuel rationing in sight, people will be anxious to keep heating equipment in first-class condition.

Dust-Stop's got a new Sales Plan that'll really help bring this business to *you*.

It offers the biggest set of dealer helps in the filter business. And it gives you *free* . . . mats for newspaper ads . . . direct-mail pieces and follow-up cards with your name and address imprinted free . . . filter-changing reminder labels to paste on prospects' furnaces . . . a card file for prospects' names and follow-up dates . . . and window and counter displays.



In addition, Dust-Stops are the only filters to be nationally advertised consistently to the readers of Life, Saturday Evening Post, Better Homes and Gardens, and American Home.

Start now. Drum up filter replacement work. Make it help you soften the hard knocks your business and you have to take, these days. Get in touch with your distributor today. Ask him to show you Dust-Stop's Free 1942 Sales Plan, "Pulling Profits Out Of The Air."

Owens-Corning Fiberglas Corporation, Toledo, Ohio. In Canada, Fiberglas Canada, Ltd., Oshawa, Ontario.

DUSTOP*

* T.M.Reg. U.S. Pat. Off.

FIBERGLAS* AIR FILTERS

RYBOLT

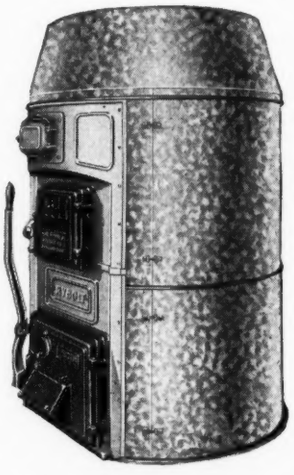
For War-time Heating Sales



YOUR BEST BET IS THE

COAL-FIRED GRAVITY FURNACE

Iron and steel are so vitally needed for tanks, guns, planes, ships and other war implements that there just isn't enough material left to produce heating units in pre-war quantities and variety. Further limitations are imposed by the restrictions on gas and oil for fuel. Naturally we all want to support the war effort whole-heartedly, and RYBOLT is making the best of the situation by concentrating its production on coal-fired gravity furnaces. In this field RYBOLT offers a line that is particularly well adapted to the requirements of war-time heating.



★ ★ FOR REPLACEMENT BUSINESS ★ ★

RYBOLT Series 15—Cast Iron Coal-Fired Gravity Furnace

Under P-84 a vast number of heating units will need to be replaced, and RYBOLT Series 15 is ideally adapted to fill this need. With the time-tested principles that have made this RYBOLT furnace famous, Series 15 has many features that make it a quality furnace throughout, attractive in appearance, designed and built for durability, utmost heating efficiency and economy. Distinctive features are the ample capacity fire bowl and combustion chamber, corrugated inside and out, extra large duplex ball-bearing grates, waist-high shaking lever, slip-on front casting construction, effective smoke consumer, smoke- and gas-tight joints and extra weight castings. Made in 4 sizes.



★ ★ FOR WAR HOUSING SALES ★ ★

RYBOLT Series 1815—Cast Iron Coal-Fired Gravity Furnace

Embodying all the well known RYBOLT quality features, this compact, small-capacity 18-inch coal-fired gravity furnace effectively meets the space and price limitations of War Housing. Sturdy, dependable and economical, it has ample heating capacity for the small or medium sized house. The radiator, feed section and ashpit are of one piece construction especially desirable in a furnace of small capacity. Duplex ball-bearing grate; waist-high shaking lever, operated without stooping; extra heavy corrugated fire bowl and combustion chamber; slip-on front casting construction. Attractive modern design.

TRADE MARK

Write for details of the

RYBOLT WAR HOUSING SALES PLAN

THE RYBOLT HEATER COMPANY

615 MILLER STREET • ASHLAND, OHIO

Vol. III

American ARTISAN

No. 6

Repair and Maintenance Must Keep Us Going

IT APPEARS now that the repair and replacement business must suffice to keep the warm air heating industry going for the duration of the war.

To do repair and maintenance work we now have several orders under which we may operate. P-84 is, of course, the most important—it is our pass of admission to the job of keeping the nation's millions of furnaces operating.

We are encouraged these last few weeks to find that the literal interpretation of the order is being broadened by FHA offices to permit many "betterments" which at the same time make more quarters for war workers, or better conditions for citizens. We know instance after instance where insured projects have been granted automatic firing, even blowers where such "betterments" make comfort more certain or caretaking easier.

This encouraging cooperation by FHA will do much, we think, to soften the otherwise severe restrictions under which this industry is trying to operate.

We also have P-110, the remodeling order under which an owner wishing to make additional quarters for war workers (in defense areas, of course) can obtain A-5 priority for critical materials up to $100 per room average or a total of $800 per house for this remodeling. Lumber, masonry, etc. are still not affected so $800 will do quite a remodeling job.

Eight hundred dollars will certainly cover almost any replacement or repair or improvement we can suggest in view of other restrictions on certain types of apparatus.

There is also P-100, the repair, maintenance, replacement of equipment used in manufacturing, processing, fabricating concerns; in warehousing companies; by charitable or educational institutions; by printers, publishers, broadcasters, telephone, telegraph firms; and by hospitals, clinics, sanitoriums.

Much of this may not be furnace heating, but it is surely good for much sheet metal, roofing, blow pipe work.

And all three of these orders have now been implemented by the amendment to L-79 which permits the sale of almost any type of heating apparatus or accessory we have in our manufacturer, jobber and dealer stocks.

The "smartest" heating contractors we know have already laid plans to keep their forces intact by pressing for repair, replacement and maintenance work. These operators expect to set up sales forces and do advertising to owners who now have money and need heating system repairs.

We believe that while contractors are about it they should press FHA to approve "betterments" which cannot be filled out of inventory. For instance a stoker is a "betterment" but if your jobber has a stoker and some owner wants to buy it what good does the stoker do standing on his floor.

Or again, many dealers know a blower will permit better heating of rooms throughout the house. Don't be afraid to ask for priority on such work or go ahead and sell under L-79 amended without the priority. Of course, you may have trouble getting replacement of equipment without priority, but accessories are better sold than stored.

All of Washington, quite likely, admits that to win this war our citizens must be warm and dry. That to permit rapid failure of our heating plants is one of the shortest roads to complete disintegration of civilian morale. That the comparatively small amounts of critical materials required to keep our heating systems in good condition will not, in the final analysis, make or break the war effort.

To make this possible we are told that manufacturers will from now on be given material more on the basis of use of the product manufactured than on the actual priority orders they can show on their PD-25A's. As a result an A-10 for a replacement furnace may get raw material before an A-1 for a beverage dispenser. If this is true then this industry appears to be in a fair way to keep going.

L-79 (The Freeze Order) Has Been Amended

ON SATURDAY, May 23, WPB amended L-79.

L-79 is the "freeze" order which stopped the sale and delivery of most types of heating equipment.

Amended L-79 relaxes the restrictions imposed by the original order by removing the ban on equipment necessary for civilian needs.

This amended L-79 is one of the most interesting and important orders yet issued—interesting because it lets us sell by *not mentioning* specific products and important because the underlying idea is to permit the sale of equipment in inventory.

We suggest a second reading of the above. The amendment is confusing because contractors see only seven items listed and don't understand that all the other items which are not listed are now released.

The amendment is important because it permits the sale of equipment in stock—if other orders do not cover—and this has been one of our strongest criticisms (what can we do with equipment on our floor).

Now to be specific amended L-79 *does not* mention—gas furnaces, forced air furnaces, winter air conditioners, stokers, blowers, motors, registers, filters, humidifiers, pipe and fittings, controls. Since these are not mentioned, their sale reverts to their status prior to April 16 when original L-79 was issued.

Gas furnaces—you have in stock can now be sold except in the 24 areas restricted under L-31, *with or without* a priority rating; provided you don't need priority to replace.

Forced air furnaces—if you have in stock may now be sold *with or without* a priority rating except oil furnaces which are mentioned specifically in the new order and explained later.

Winter air conditioners—are probably classed the same as forced air furnaces. Oil burning conditioners probably classed like oil furnaces.

Stokers—can now be sold if you have in stock, *with or without* a priority. But manufacturers will be limited in production by Order L-75.

Blowers—can now be sold if you have in stock *with or without* a priority order and may be legitimately ordered from any manufacturer who will accept your order.

Motors—can now be sold *with or without* a priority order if you have in stock, but for replacement you probably must furnish the manufacturer a priority he can extend for raw materials.

Registers—can now be sold *with or without* a priority order if you have in stock and may be ordered under any acceptable priority from the manufacturer.

Pipe and fittings—can now be sold *with or without* any priority from your stock but—galvanized iron is still controlled by the Defense Housing Critical Materials List; tin is not obtainable; terne is unobtainable—so your supplier may deliver whatever he has in stock and is willing to sell.

Filters—never have been under any sale control so can be sold as usual. Metal frames, of course, are prohibited by the Critical Materials List.

Humidifiers—may now be sold from your stock *with or without* a priority no matter what the pan material but the manufacturer must ship from stock and is still controlled by the stainless steel, aluminum and copper orders.

Controls—can now be sold *with or without* a priority from your stock, but replacement or filling an order is up to the manufacturer.

Please note that we have said nothing about defense areas. L-79 amended permits sales as outlined above *anywhere*—whether in a defense area or outside.

Also note that we did not mention oil-fired furnaces. Oil-fired furnaces are specifically covered in the order under b-3-l (see order following) which says that an oil-burning furnace and oil burners may be sold *only if they replace other oil burning equipment* and reduce the consumption of fuel oil.

It should be apparent, if you've read this far that amended L-79 is a plan to dispose of existing inventory. Through the new order equipment you have in stock can be sold providing you satisfy the other applying orders—but the order does not permit additional manufacture. Production must depend upon other orders as briefly sketched above.

L-79 amended does mention seven specific items as follows: Under "Metal Heating Equipment" (see the full order following this explanation) lists these items:

(i) steam and hot water heating boilers which use coal or oil as fuel.
(ii) cast iron heating radiators (other than electric steam radiators) including, but not limited to, cast iron tubular radiators and cast iron convectors.
(iii) hot water circulator pumps, vacuum pumps, condensation pumps.
(iv) warm air furnaces which use coal or oil as fuel.
(v) heating stoves and space heaters which use coal, oil or gas as fuel, except gas fired floor furnaces.
(vi) oil burners.
(vii) metal fuel oil tanks.

The sale of these seven items must be controlled by the amended order. Read the order carefully.

LIMITATION ORDER NO. L-79, AMENDED MAY 23, 1942

Section 1154.1 (General Limitation Order No. L-79) is hereby amended to read as follows:

"*Section 1154.1—GENERAL LIMITATION ORDER NO. L-79*

(a) *Definitions.* For the purposes of this Order:

(1) "Metal Plumbing Equipment" means any of the following items which are composed of metal to the extent of 50% or more by weight:

(i) Plumbing fixtures, including only bathtubs, closet hoppers, closet tanks, grease interceptors, laundry trays, lavatories, shower receptors, shower stalls, sinks, sink and laundry tray combinations, and urinals.

(ii) Plumbing fixture fittings and trim.

(iii) Water heating equipment, including only direct fired water heaters which use coal, oil or gas as fuel, indirect type water heaters, hot water storage tanks and range boilers.

(iv) Cooking and baking equipment of types used in or connected to gas or steam systems.

(2) "Metal Heating Equipment" means any of the following items which are designed to provide heat for the interior of a building and which are composed of metal to the extent of 50% or more by weight:

(i) Steam and hot water heating boilers which use coal or oil as fuel.

(ii) Cast iron heating radiators (other than electric steam radiators) including, but not limited to, cast iron tubular radiators and cast iron convectors.

(iii) Hot water circulator pumps, vacuum pumps, and condensation pumps.

(iv) Warm air furnaces which use coal or oil as fuel.

(v) Heating stoves and space heaters which use coal, oil or gas as fuel, except gas fired floor furnaces.

(vi) Oil burners.

(vii) Metal fuel oil tanks.

(3) "Ultimate Consumer" means any person who purchases Metal Plumbing Equipment or Metal Heating Equipment other than persons who purchase Metal Plumbing Equipment or Metal Heating Equipment for resale without using such equipment for the purpose for which it was designed.

(4) "New Metal Plumbing Equipment or New Metal Heating Equipment" means any Metal Plumbing Equipment or Metal Heating Equipment" which has never been used by an Ultimate Consumer.

(b) *General Restrictions.* No person shall sell or deliver any New Metal Plumbing Equipment or New Metal Heating Equipment to an Ultimate Consumer except that, subject to the restrictions of any other order of the Director of Industry Operations.

(1) any person may sell and deliver any item of New Metal Plumbing Equipment or New Metal Heating Equipment which item is sold by him for no more than five dollars ($5.00), provided that such item is sold as a part of an order the total cost of which to the purchaser is not more than ten dollars ($10.00);

(2) any person may sell and deliver any New Metal Plumbing Equipment or Metal Heating Equipment pursuant to an order or contract which bears a preference rating of A-10, or better;

(3) any person may sell and deliver any of the following listed equipment:

(i) Oil burning furnaces (including but not limited to furnace burner units), oil burning boilers (including but not limited to boiler burner units) and oil conversion burners, *provided* that such furnaces, boilers and burners may be sold and delivered only if they are sold and delivered to replace other oil burning heating equipment for the purpose of reducing the consumption of fuel oil.

(ii) Any equipment which is specifically designed as hospital equipment, surgical equipment, dental equipment, veterinarian equipment, barbershop equipment or beauty shop equipment;

(iii) Any equipment which is sold and delivered pursuant to an order received or contractual engagement made prior to April 17, 1942, provided that delivery is made not later than June 30, 1942;

(4) through July 31, 1942, any person may sell and deliver any New Metal Plumbing Equipment or New Metal Heating Equipment concerning which the purchaser has made the following signed statement to him, listing all New Metal Plumbing Equipment or New Metal Heating Equipment to be sold or delivered:

"The following equipment ———— is required for the completion of the erection, construction, remodeling or rehabilitation of a building, structure or project, or additions extensions or alterations thereof, which has been initiated (by physically incorporating therein material which is an integral part thereof) after July 31, 1941, but prior to April 10, 1942.

Dated ———— Signed ————."

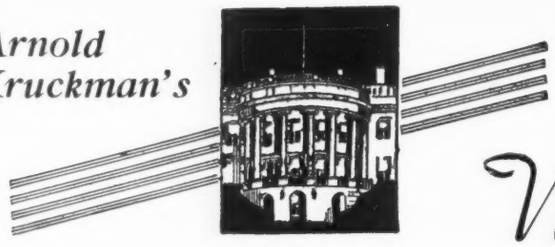
This statement shall constitute a representation to the War Production Board and to the person supplying such equipment that the stated facts are true and that the listed equipment will be used for the purpose stated:

(5) any person may sell and deliver any New Metal Plumbing Equipment or New Metal Heating Equipment concerning which the purchaser has made the following signed statement to him listing all New Metal Plumbing Equipment or New Metal Heating Equipment to be sold or delivered:

"The following equipment ———— is required for the completion of the erection, construction, remodeling or rehabilitation of a building, structure or project, or additions, extensions or alter-

(*Continued on page 90*)

Arnold Kruckman's



Washington Letter

New House Construction For The Next 6 Months

AT this time, early in June, there are 410 defense areas. All are housing areas, but some are not what the Government people intimately call Critical Priority areas. It is not possible to give the exact number of Critical Priority areas. And it is not easy to define a Critical Priority area because there are many people in Government housing agencies who do not even know there is such differentiation. It is impossible to forecast how many more there will be. The majority of the Defense Housing areas are Critical Priority areas. When they are classified or created they are designated by Presidential proclamation.

New Phrase—Critical Priority Area

A Critical Priority Area is entitled to the highest ratings. And, apparently, the designation as a Critical Area places the particular area in the position of preferred applicant for the materials that otherwise are almost unobtainable. Not invariably, but usually, a socalled Priority Critical Area is the place where the Government builds public housing, at the expense of the taxpayer. The funds come from the Federal Treasury. Occasionally private funds, insured by FHA, pay for the housing built in the Critical Priority Areas. Usually they are funds provided under the rather liberal terms of Title VI. When FHA-insured private funds pay for housing projects in Critical Areas, the housing projects are certified for the Priority Ratings to which any project in a Critical Area is entitled. Other FHA-insured projects also are entitled to ratings, but apparently these ratings are not as high, and therefore not as swift in bringing scarce materials, as are those which apply within a Critical Area.

The difference between a Critical Priority Area and a non-Priority area is definite, but the exact definition apparently is known chiefly to the experts. Therefore it is wisdom for those who have a reason to be interested, to make inquiry among those locally competent to discuss FHA, NHA, and FPHA and WPB affairs.

Generally speaking, Defense Housing projects, FHA or otherwise, built outside the pale of Priority Critical classification, will have some of the difficulties that beset other building projects. You know, naturally, that even with Priority Ratings of lower brackets, it is often almost impossible to secure materials, and it is absolutely impossible to secure Critical materials or things made of Critical materials.

If this effort to explain the difference between one kind of Defense Housing Priority and another seems a little foggy and puzzling, bear in mind the whole business of Housing and Priorities and Preferences is fluidic and soft. It changes and shifts almost from day to day in details; even those, like Bob Thulman of FHA, who are close to it, very candidly admit they do not know about this or that particular feature. The governing principle to carry in mind is that day by day, in every way, scarce materials are becoming scarcer and scarcer; and as the materials, and the equipment into which the materials are made, become scarcer, the privilege to use materials or equipment becomes rarer, and new Regulations or Orders shrink and limit previous rights given to utilize them.

New FHA Critical List Coming

They tell us here, some time in June, FHA will issue new Regulations governing the use of Critical objects. Meanwhile, FHA has suspended insurance guarantees even though it has a fresh fund of $500,000,000 provided by Congress. The temporary freezing of operations is ascribed to the fact that it is necessary to clarify the intent of Sections 603 and 608 of the recently enacted amendments to the National Housing Act. The new Regulations are expected to bring procedures in building and equipping FHA-insured structures, in line with the limitations imposed by the ever-tightening influence of shortages in Critical items. Obviously, heating equipment already has been squeezed to an almost irreducible limit, therefore the new Regulations are not expected to impose appreciable burdens on the heating and allied industries.

But there is a hint that the impending Regulations also may be affected by suggested changes in the whole system of Priorities. This system has palpably become so complex that the situation might be likened to Inflation. There are apparently far more Priority Ratings than there are materials and equipment with which they may be cashed. And the cash of materials and equipment is constantly becoming less.

Allocations May Replace Priorities

It seems to be the idea, therefore, that Allocations may be introduced to stabilize the situation. Under Allocations all War activities, including the needs of the armed forces and analogous agencies, as well as irreducible civilian requirements, would be supplied out of the total resources available to the nation, each section receiving its proportion of the materials and things that are scarce. Allocations would probably be operated in what might be termed wholesale distribution, and Rationing would be applied in the more detailed smaller operations that might be described as

retail. On the whole, this system may be far more satisfactory to every one concerned than the Priorities that now are deemed outmoded. Naturally Allocations and Rationings are not satisfactory to those sections of the War economy which now benefit chiefly; they oppose the introduction of a new system. This reluctance, as well as the difficulty of organizing a new system of distribution, make it necessary that WPB move slowly in taking the essential steps.

The Defense Housing Critical Priority Area must not be more than two miles from the plant where the workers in the area are employed; or, defined in another way, it must not be further removed by transportation available than it would cost a worker 40c daily for a roundtrip ticket; defined still in another manner, it must not take a worker over-all more than an hour to travel from his home to the plant where he works. This yard-stick apparently applies to all types of Defense Housing.

Labor as Short as Material

The supply of labor has now become practically just as much of a problem as materials. Transportation also generally is regarded as a facility that will require the same careful consideration now given to labor and materials. These three major equations control the expansion and operation of War plants themselves. It is the rapidly apparent scarcity of all three that has caused WPB to determine there will be no further new plant-building expansion, except the relatively minor number of shipyards, plane factories, and munitions plants still to be built in various parts of the country. Otherwise, the facilities of existing plants will be adapted to greater production, and existing plants that have been used for non-War purposes will be converted to War production as swiftly as possible. New plants, generally speaking, are ruled out, except those whose construction is substantially under way.

14 Billion Construction Program

There will be no material reduction of the gross construction program as planned earlier in the year. This totals approximately $14,000,000,000; actual construction will carry over into the early weeks of next year. During the first three months of 1942, War construction, over-all, totalled $2,000,000,000, of which $700,000,000 went into various plants, not including shipyards and similar direct War facilities. Roughly it is estimated that housing this year will absorb between $4,000,000,000 and $5,000,000,000.

In addition to the $500,000,000 placed to the credit of FHA, the President, late in May, asked Congress to provide $600,000,000 additional to be spent directly by the Government in constructing living quarters for workers moving to War-work areas. In the message the Executive calculated that additional shelter must be provided for not less than 1,600,000 workers. In Housing agency circles it is generally estimated over 2,000,000 new war workers must be sheltered, for whom there is no present housing in the areas to which they will be moved. The peak of this hegira is expected in 1943. These people will move to plant-centers either already in existence or now in progress of being made ready.

It is generally understood from authentic WPB sources that both plant and housing construction contracts will reach a peak in the rate of awards very soon, but that the actual volume of construction will not begin to show any perceptible decline until early next year. However, no further War construction is planned in 1943. The $8,000,000,000 additional which actually had been scheduled as a further extension into 1943, has been abandoned. WPB has come to the conclusion that there are neither materials, workers, nor transportation, which can be subtracted from other War production to use in further War construction.

Dormitories Are Coming

The type of housing planned for War workers depends largely upon the site, the utilities available, and other local influences. Wherever possible, dormitories will be the prevailing type. They are intended for single persons, either men or women, and for childless married couples. It is generally planned they will be frame structures, single persons living along one side of a corridor, and the married couples on the other side. These dormitories will reduce sanitary facilities to the essential minimum, and will be provided with communal shower baths, communal kitchens, laundries, dining rooms, recreation rooms, parlors, and similar communal facilities.

It is anticipated these dormitories will furnish accommodations for groups ranging from 30 persons to 1,000 per building. The size of the building will often depend upon the local utilities. It is foreseen in new communities, (the cornfield plant-sites, as it were), the larger dormitories will prevail because the utilities either must be installed or extended from nearby communities. On the other hand, when the housing is built in an existing city or town, it often will be better economics to spend a little more money on a series of smaller buildings served by the local utilities whose connections are available frequently at less cost in smaller units spread more widely over a certain area.

In many instances, it is believed the dormitories must be built solely for men or for women. In the interest of speed and concentrated activity on the job, it is anticipated it may be wise to assemble men and women without their families in certain communities. The workers will either be unmarried persons, or married persons who will be required to leave their families at home. It is pointed out that Social Security Administrator McNutt's Manpower Administration has the legal authority to mobilize workers by draft, practically in the same manner the Army mobilizes the selectees for military service. The prospects are that relatively few single-family dwelling units will be built in connection with any new program. Obviously some dwellings of the type will be erected, and the thought seems to be that they will be approximately more permanent than any other dwellings to be constructed. The general idea seems to be that wood, stucco, and brick will be the prevailing building materials.

Pre-Fab's Have Lost Popularity

Approximately 45,000 factory-prefabricated demountable housing units are now under way. This is virtually fulfillment of contracts made before the present plan was evolved. Further use of the factory prefabricated demountable house has practically been eliminated from the Government plan. The single-family dwellings and the smaller multiple-family units, which take their place, are expected to be built largely under Title VI with FHA-insured funds.

(Continued on page 82)

On Our Industry's Front

Conversion Grates Need No Priority

GRATES for furnaces, boilers and stoves can now be obtained *without priority ratings* by home owners who are converting their heating plants from oil to coal, the Consumer Division of the Office of Price Administration reported June 1.

Automatic stokers and other materials needed for the conversion to coal are also obtainable *without* a preference rating.

A new War Production Board order permits the purchase of grates without a priority rating. Before the order was issued, the purchase of grates valued at more than $5 retail required a rating of A-10 or better.

The order applies to cookstoves, water heaters, and "space heaters" or parlor stoves, as well as to central heating plants. Reconverting to coal is a simple matter for thousands of owners of furnaces and boilers which now are fired by oil burners, but which formerly were fired by coal.

◆

No Decision Yet to Limit Retail Stocks

JAMES S. KNOWLSON, Director of Industry Operations, has made the following announcement in connection with reports about considerations which are now being given by the War Production Board to possible ways and means of limiting wholesale and retail inventories to practicable working minimums:

1—"Considerable confusion has been caused in business circles by speculations about the announcement that the WPB is considering action to require stores to reduce their stocks to 'practicable working minimums.'

2—"This problem is being considered by the War Production Board, as reported, but no definite decisions have been made. Further deliberations are necessary, because of the many practical problems involved, and a final decision will probably not be made for some time.

3—"It appears that preliminary drafts of such an order have been circulated, and it should be understood that these are ideas and suggestions only and do not in any sense represent a decision on the part of the War Production Board."

◆

All Manufacturing Under PRP

ANOTHER step toward strict allocation of scarce materials and improved control of inventories was taken May 30 when all but a few classes of companies requiring more than five thousand dollars worth of metal for the third calendar quarter of 1942 must apply for priority assistance under the Production Requirements Plan before July 1.

More than 10,000 companies, including most of those handling large war contracts, will be required to operate under Production Requirements Plan by the terms of a revision of Priorities Regulation No. 3 which will be issued within a few days. About 7,000 companies are now using the plan.

It is anticipated that only the following classes of companies which will use more than five thousand dollars worth of metal in the third quarter will continue under existing procedures instead of under the Production Requirements Plan: Producers engaged in primary production of basic metals; distributors; wholesalers; builders; companies engaged in transportation; utilities, including light, heat, water and gas companies; mining companies and petroleum enterprises; communications, including telephone and telegraph; companies engaged in sewage and drainage operations.

All large metal users have recently been required to report their use of metal to the War Production Board on Form PD-275. Those affected by the revision of Priorities Regulation No. 3 may use exactly the same information in filling out Production Requirements Plan application Form PD-25A, adding the other information called for.

As a result of this step, the War Production Board will be able to determine in advance of each quarter the total quantities of material required by industry. It will also obtain information as to available inventories in the hands of each manufacturer. With this information at hand, demand can be brought into approximate equality with supply, and the available supply will then be distributed in accordance with the established quotas.

While preference ratings will be assigned under the Production Requirements Plan, the War Production Board will assign ratings only to delivery of the amount of material which it is estimated will be available during the quarter.

◆

Four New Defense Areas

Four new areas have been added to the Defense Housing Critical Area List. They are: Camp Atterbury, Indiana; Marion, Ohio; Illiopolis, Illinois; Hondo, Texas.

◆

No More Public Air Conditioning

WAR PRODUCTION BOARD May 15 banned new installations of air conditioning and commercial refrigeration equipment except to meet war and essential civilian requirements.

New installations designed solely for personal comfort, such as in theaters, restaurants, hotels, etc., will not be permitted.

Limitation Order L-38 also places rigid restrictions on the production and sale of air conditioning and commercial refrigeration equipment.

Until August 15, only the Army, Navy and Maritime Commission will be entitled to contract for production of such items as beer dispensers, carbonated beverage dispensers, bottled beverage coolers, low temperature mechanical refrigerators designed to store frozen food or to "quick-freeze" food, individual room coolers, florist boxes and display cases, and

fountainette-type soda fountains. After that time, production of these items must be stopped completely.

Order L-38 prohibits the installation, effective immediately, of any new equipment except on "preferred orders." These orders apply only to the Army, Navy and Maritime Commission, certain other government agencies, Lend-Lease requirements, and persons possessing a preference rating of A-9 or higher issued directly to them and designating the type of equipment desired.

During any calendar quarter beginning with the quarter July 1—September 30 producers may not manufacture more items of equipment than the number for which they have preferred orders on hand, or the number delivered on preferred orders during the next preceding quarter, whichever is greater.

J. M. Fernald, Chief of WPB's Air Conditioning and Commercial Refrigeration Branch, pointed out that the branch will consider the following uses of equipment as "essential":

1. Processing, transportation, storage, preservation, and distribution of food and food products only in those expanding defense communities where adequate minimum facilities do not exist in the opinion of the War Production Board.

2. Production, processing, transportation, storage, preservation, and distribution of milk and dairy products. (This does not include equipment for the manufacture, sale, or distribution of ice cream, frozen confections, carbonated or malt beverages.)

3. Mining, manufacturing processes, communication equipment, and processing methods (including water and liquid cooling) where control of temperature or humidity can be proved necessary for production of the product or products.

4. Ice manufacture and storage only where, in the opinion of the War Production Board, adequate facilities do not now exist.

5. Miscellaneous applications in connection with testing and research laboratories; defense production drafting rooms which can demonstrate proof of actual need; operating rooms in regularly constituted hospital buildings; preservation of drugs, medicine and serums, mortuaries (body storage); production inspection test rooms.

◆

Industrial Equipment Under L-123

War Production Board has assumed control over the distribution of many types of general industrial equipment by order, L-123, which provides that no one may accept any order for or deliver any equipment listed in the 14 classes set forth *except upon a preference rating of A-9 or higher* or upon specific authorization of the Director of Industry Operations.

Manufacturers may ship machinery to distributors only to fill approved orders actually received by distributors or to replace machinery delivered by a distributor on an approved order.

Manufacturers and distributors who have orders on their books which do not fall within the approved classification may appeal to WPB for permission to dispose of those orders by listing them, giving the name of the prospective purchaser or lessee, a complete description of the machinery and its value, the use for which it is intended, and other pertinent data.

Restrictions contained in the order do not apply to deliveries of repair parts worth less than $1,000 for use in maintaining a single piece of existing equipment, or repair parts worth more than $1,000 in cases where an actual breakdown or suspension of operations has occurred as a result of damage to machinery.

A list of the machinery covered in List A related to our industry includes industrial fans, industrial blowers, Turbo blowers, compressors, motors over 1 Hp., industrial air washers, industrial heat exchangers, electric controls.

Rulings and Amendments To Active Orders

Vaporizing Burners Can Be Manufactured

Mr. J. D. Wilder, Editor
American Artisan
Dear Sir:

Your letter of April 23, 1942 with reference to your question on Limitation Order L-74, has been received.

Please be advised that natural draft vaporizing burners do not come under Order L-74.

Yours very truly,
W. Walter Timmis,
Chief Plumbing and Heating Branch.

Enclosure signed: David H. Buthy, Chief Heating Section.

◆

Amendment 3 to L-63

The method of computing inventories permissible under Suppliers' Inventory Limitation Order L-63 has been altered to allow suppliers affected by the order to base their calculations on their sales during the preceding quarter, rather than on the second preceding month.

Amendment No. 3 to the suppliers' order, announced May 25 by the Director of Industry Operations, affects this change, which is optional. A supplier located in the Eastern or Central War-Time Zones may now carry stocks of the nineteen controlled categories of merchandise in an amount equal to two-thirds of the dollar value of such goods sold by him during the three preceding months. Dealers in other time zones may maintain inventories equalling the dollar value of sales during the full period of the previous quarter.

The longer base period is expected to simplify accounting procedure, and to provide a more practicable and steady figure.

◆

L-63 Amendment No. 2

WHOLESALERS and distributors covered by the Suppliers' Inventory Limitation Order, L-63, will be permitted to accept deliveries of limited quantities of specific items, regardless of their total inventory, by Amendment No. 2 to the order, issued May 6.

Amendment No. 2 to L-63 is designed to allow suppliers who are subject to the order to replenish stocks of specific items in which they are "short" even when their total inventory exceeds the maximum permitted by the order. The amendment allows a wholesaler or distributor to accept deliveries of specific items of such

supplies up to a total dollar volume equal to his sales of these specific items during the preceding month. This will prevent a shortage of such items in communities served by suppliers whose total inventory now exceeds the maximum permitted by the order.

The Distributors Branch of the War Production Board has recommended the action because some suppliers may not be able to reduce their total inventory to an extent which would permit them to accept additional deliveries for many months under the terms of the order as originally written and, as a result, retailers in the communities they serve might not be able to buy some items at all.

◆

Amendment 5 to M-21

Amendments to Orders M-21 and M-21-b to permit the sale on unrated orders of fence wire, barbed wire, poultry netting, fence posts, gates, staples and corrugated roofing and siding have been issued.

These items are added to nails, bale ties and small pipe on which no priority ratings are necessary for sales from warehouses and dealers. The action was taken because these items are constantly used by farmers and householders for maintenance and repair.

An optional change in the quota basis for wire and wire products delivered to warehouses also is contained in the amendment to M-21-b.

◆

More Weight (If Less Critical) Permissible

INSTALLATION of equipment calling for *more* material than that being replaced *is permissible* under the Plumbing and Heating Repair and Maintenance Order (P-84), if the substitution is one of less critical material for that which is more critical.

This is made clear by Interpretation No. 1, issued June 1, which also declares that the prohibition against a substitution "more extensive than that which is necessary to replace" worn-out or damaged parts *does not mean that the identical part or parts must be replaced.*

Furthermore, installations calling for a different kind of equipment are not necessarily more extensive within the terms of the order, if the new parts do not contain a greater weight of metal. For instance, coal burning equipment is a permissible replacement for oil burning or gas burning equipment.

In explaining that a material less critical may be used for replacement, the Interpretation says that "where steel equipment is replaced by cast iron equipment, the substitution is not 'more extensive' even though the substituted equipment be heavier than that replaced. Similarly, a substitution of iron and steel equipment for copper or copper base alloy is not a 'more extensive' substitution even though the substituted equipment be heavier than that replaced."

The following official interpretation is hereby issued by the Director of Industry Operations with respect to Section 1022.1 (Preference Rating Order No. P-84).

Subparagraph (b)(3) of Preference Rating Order P-84 reads as follows:

> "'Emergency Repairs' means only those remedial repairs which are required by actual or imminent breakdown by Plumbing Equipment or Heating Equipment. It includes (but is not limited to) the emergency replacement of equipment which is worn out, damaged beyond repair or destroyed. It does not include the installation of superior type equipment to replace usable equipment, or a substitution more extensive than that which is necessary to replace the part or parts that are worn out, damaged or destroyed."

Within the meaning of this subparagraph, Plumbing Equipment or Heating Equipment which replaces "the part or parts that are worn out, damaged or destroyed," need not be identical with the part or parts that are replaced.

Installation of a part or parts which do not contain a greater weight of metal than the part or parts replaced is not "a substitution more extensive than that which is necessary to replace the part or parts that are worn out, damaged or destroyed," regardless of the fact that such Plumbing or Heating Equipment is of a type or kind different from that replaced. Thus, coal burning equipment may replace oil burning equipment or gas burning equipment.

Further, where steel equipment is replaced by cast iron equipment, the substitution is not "more extensive" even though the substituted equipment be heavier than that replaced. Similarly a substitution of iron or steel equipment for copper or copper base alloy equipment is not a "more extensive" substitution even though the substituted equipment be heavier than that replaced.

Issued this first day of June, 1942.

J. S. Knowlson,
Director of Industry Operations.

◆

Simplified PD-25A

A REVISED form of application for priority assistance under the Production Requirements Plan to be used beginning with the third quarter of 1942 has been announced.

New instructions to applicants for preference ratings under the Production Requirements Plan will allow them to omit a considerable part of the information which has previously been required. Users of materials will also be able to supply the same reports on PRP applications which they are now preparing in answer to the general metals questionnaire, Form PD-275, and duplication of paper work will thus be avoided.

To assure fair and uniform treatment of applicants under PRP, specific directions for assignment of ratings in accordance with the importance of various products in the war and civilian economy are now being prepared by the industry branches of the War Production Board. These directions will specify the grade of ratings—A-1-c, A-3, etc.—which should normally be granted for the use of each industry or type of production, and will indicate the policy to be followed in determining the amounts of materials to which such ratings may be assigned in each case.

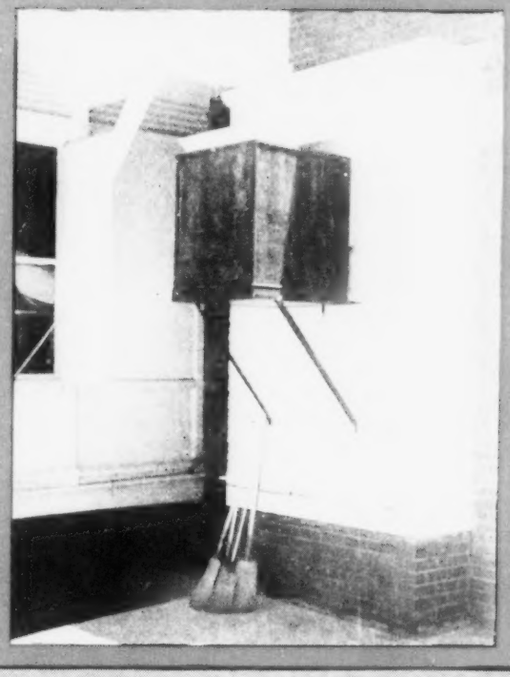
Under the new program, assignment of ratings to PRP applicants will depend increasingly on the nature and use of the applicant's product, less on the pattern of preference ratings on the orders which he has on his books. For example, high ratings would be assigned to a manufacturer of parts which would ultimately be incorporated in military planes or tanks, without his having to prove that 75 per cent of his orders were A-1-a, 15 per cent A-1-b, etc.

This emphasis on the use of the product rather than on the pattern of existing preference ratings on orders to be filled by the applicant makes it possible to eliminate a considerable part of the information which has previously been required from PRP appli-

(*Continued on page* 86)

RESIDENTIAL AIR CONDITIONING

SECTION



DEVOTED TO HOME AND SMALL COMMERCIAL AIR CONDITIONING

Famous Battles

SINKING OF THE JAP BATTLESHIP "HARUNA"— The heroism of Captain Colin Kelly will live long in history. Such self-sacrifice and bravery make America proud, spur others on to emulate his feat. To the men at the front, all glory and honor! It's their due. The men serving on the "production front"— who build the "tools" so vital to Victory—are doing an all-important job, too. Getting this vital equipment where it is most urgently needed places an added responsibility on distributors and dealers. American Blower Distributors and Dealers are doing all in their power to speed deliveries, place fans, blowers, ventilators and heaters where they are needed most, furnish prompt, dependable service to keep the nation's war industries producing. You can count on their cooperation during this emergency.

AMERICAN BLOWER

AMERICAN BLOWER CORPORATION, DETROIT, MICHIGAN
CANADIAN SIROCCO COMPANY, LTD., WINDSOR, ONTARIO
Division of AMERICAN Radiator and "Standard" Sanitary Corporation



Proposed Simplified Practice Recommendation For Pipes, Ducts, Fittings, Registers For Warm Air Heating and Air Conditioning

This proposed Recommendation is not yet in final form, but has been in use for some time. We are publishing the suggestions before final approval because many manufacturers have made-up items in tin sufficient for several months and jobbers probably have stocks for sixty days. In the final draft, tin items will be eliminated—probably there will be other changes, but for the present most of the items may be purchased in tin or in black substitute. Sketches are included to show exactly what is recommended.

THIS project was initiated by the War Production Board with a view to reducing unnecessary supplies of critical materials, and to simplifying production processes to save man power and release productive facilities for war purposes.

A tentative schedule of types and sizes of pipes, ducts, and fittings was given careful consideration at a conference called by the Plumbing and Heating Branch of the War Production Board on January 30. The list considered by the conferees proposed to reduce the number of types and sizes of fittings for gravity systems by about 76 percent, and the number of items for forced aid and air conditioning systems by about 80 percent. Each item in the list was taken up in order, and the list further cut to eliminate items which could not be justified in the light of the existing demand for materials for war purposes. The list as herein presented is the result.

The most important single action was the elimination of all double wall pipe and fittings. These require, fitting for fitting, twice as much sheet metal in their fabrication, as do the single wall type. While it was recognized that this type of installation is required by local authorities in some instances, it was the concensus of the conference that the single wall fittings could and should, in the interests of conservation, be used in their place.

Results

A comparison with the catalog items of one manufacturer shows that the list recommended herein would reduce the variety of pipe and fittings for gravity systems by approximately 85 percent, and for warm air and air conditioning, by approximately 81 percent. Figures on the number of items are as follows:

Furnace pipe and fittings—gravity type:

Number of varieties currently offered	2663	100.0%
Number of varieties included in this recommendation	409	15.4%
Number of varieties eliminated	2254	84.6%

Ducts and fittings for forced air heating and air conditioning:

Number of varieties currently offered	2917	100.0%
Number of varieties included in this recommendation	565	19.4%
Number of varieties eliminated	2352	80.6%

A substantial reduction has also been made in the types and sizes of registers and cold air faces with which these fittings connect.

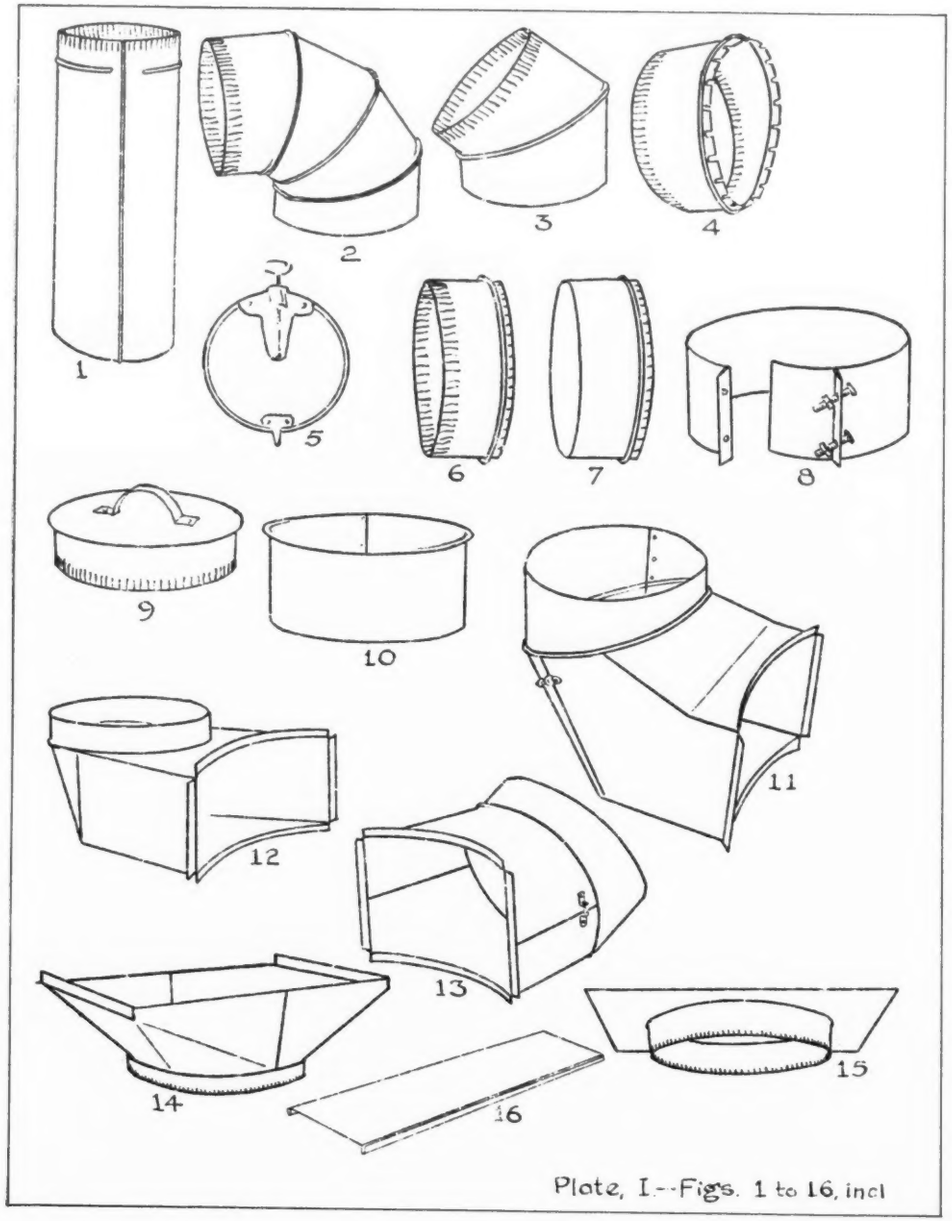
Some of the industry representatives who met with the War Production Board on January 30, have since submitted memoranda from which it is possible to piece together a rough estimate of the benefits that will accrue to the war effort through adherence to this recommendation.

It is estimated that the manufacturers of smoke pipe and elbows and furnace pipe and fittings consume annually about 38,000 tons of sheet metal. One manufacturer reported that the elimination of double wall tin fittings would save 13.5 percent of his present consumption of tin plate. In this particular instance tin fittings constituted about 32 percent of the producers total tonnage output. If these ratios hold true throughout the industry, they would indicate a total saving of about 1,600 tons of tin plate.

Raw material inventories it was estimated will be reduced by about ⅓. Assuming the average inventory is 10 percent of the annual tonnage produced, this would mean the release of about 1,260 tons of sheet metal from inventories.

The simplification program can also be expected to permit more economical production schedules, giving longer runs with less frequent changeovers of tools and dies. Production equipment will be released for other types of manufacturing operations useful in the defense effort.

The items included herein are believed to be entirely adequate to meet installation requirements. While it is proposed that no fittings other than those listed be stocked, there is, of course, no requirement that any producer stock them all.



Plate, I.--Figs. 1 to 16, incl

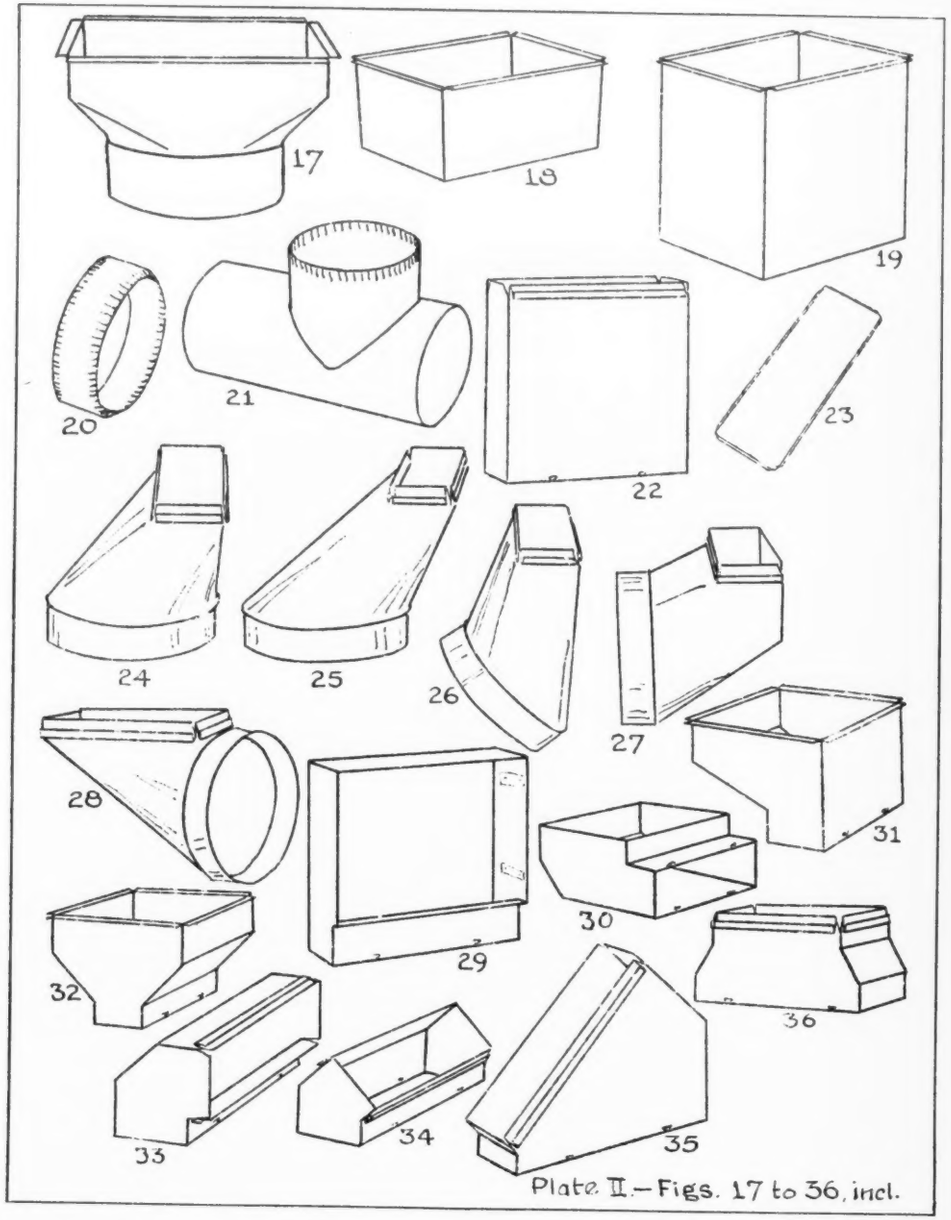


Plate II.—Figs. 17 to 36, incl.

The Proposed Stock Items

IT IS recommended that prefabricated warm air heating and air conditioning pipes, ducts, fittings, and registers be carried in stock only in the kinds and sizes listed herein.

For the purposes of this recommendation warm air heating and air conditioning pipes, ducts, fittings, and registers, shall include the following:

(a) Furnace pipe and fittings—gravity type,
(b) Ducts and fittings for forced air heating and air conditioning, and
(c) Registers to fit fittings included under (a) and (b).

The continued use of IC tin and galvanized iron specified herein is subject to such limitations as the exigencies of war may impose. This recommendation, therefore, is not to be construed as preventing the substitution of uncoated sheet metal. But it is recommended that any items for which such substitution is made be stocked only in the sizes listed herein.

Furnace Pipe and Fittings—Gravity Type

Table 1.—Round furnace pipe, elbows, angles, etc., for basement (x denotes the recommended stock items).

Item	Fig. No.[1]	Size in Inches (Diameter)														
		3	4	5	6	7	8	9	10	12	14	16	18	20	22	24
Pipe, knocked down, nested:																
IC tin	1						x	x	x	x	x					
Galvanized iron in joints of 12-, 24-, and 30-inch lengths:																
24 gage	1			x	x	x	x	x	x	x						
26 gage	1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
28 or 30 gage	1	x	x	x	x	x	x	x	x	x	x					
90° elbows, adjustable, 4-piece:																
IC tin	2						x	x	x	x	x					
Galvanized iron:																
24 gage	2			x	x	x	x	x	x	x						
26 gage	2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
28 or 30 gage	2	x	x	x	x	x	x	x	x	x	x					
45° angles, adjustable, 2-piece:																
IC tin	3						x	x	x	x	x					
Galvanized iron:																
24 gage	3			x	x	x	x	x	x	x						
26 gage	3	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
28 or 30 gage	3	x	x	x	x	x	x	x	x	x	x					
Side collars for warm air pipes																
Galvanized iron	4						x	x	x	x	x					
Warm air dampers, galvanized	5						x	x	x	x	x					
Top Collars galvanized iron	6						x	x	x	x	x	x	x	x	x	x
Stub collars, galvanized iron	7										x	x	x	x	x	x
Drawbands, galvanized iron	8				x	x	x	x	x	x	x	x	x	x	x	x
Teejoint caps, galvanized iron	9			x	x	x	x	x	x	x						
Flue thimbles, galvanized iron	10			x	x	x	x	x	x	x						
Cold air boots or stubs, galvanized iron:																
Style A	11										x	x	x	x	x	x
Style B	12										x	x	x	x	x	x
Style F	13										x	x	x	x	x	x
Transition pans, galvanized iron	14										x	x	x	x	x	x
Ceiling plates, galvanized iron	15										x	x	x	x	x	x
Side rails, double seam, galvanized iron ..... Widths	16						x		x	x						

[1]Figure numbers given throughout the recommendation refer to sketches shown in Plates I to V.

Table 4.—Single baseboard fittings for first and second floor for one register—IC tin and 28 or 30 gage galvanized iron.

Item	Fig. No.	Sizes (All Dimensions are in Inches)				
Boots to fit first floor baseboard boxes:						
Universal	24					
4" Offset	25					
45° angle	26	Register Size	Base Extension	Outside Size of Throat	Free Area of Throat	Boot Collar Size
90° angle	27					
Center-end	28					
		8x10	2¼	6⅛x10	61	8
Baseboard register boxes and angles for first floor:		8x12	2¼	6⅛x12	73	9
Baseboard register box	37	9x12	3¼	7⅛x12	85	10
45° angle	34	11x13	5¼	9⅛x13	119	12
		Stack Size		Register Size	Base Extension	
Baseboard register boxes for second floor	38	3¼x10		8x10	2¼	
		3¼x12		8x12	2¼	

Table 2.—Floor register pans, reducing collars, and tee joints for basement.)

Floor register pans, IC tin, single, with collar (Fig. 17) (Last dimension is diameter of collar).

Inches

8x10x8	9x12x9	10x12x10	12x14x12	14x16x14

Floor register pans, IC tin, single, without collar.
6" deep (fig. 18)
12" deep (fig. 19)

Inches

8x10	9x12	10x12	12x14	14x16

Floor register pans, galvanized iron, single, with collar (Fig. 17) (Last dimension is diameter of collar).

Inches

8x10x8 9x12x9	10x12x10 12x14x12	14x16x14 16x18x16	18x20x18 20x24x20	22x24x22 24x24x24

Reducing collar, IC tin (Fig. 20)

Inches

9 to 8	10 to 9	12 to 10	14 to 12

Tee joints galvanized iron (Fig. 21).
15 in. in length, 24 gage and 26 gage.

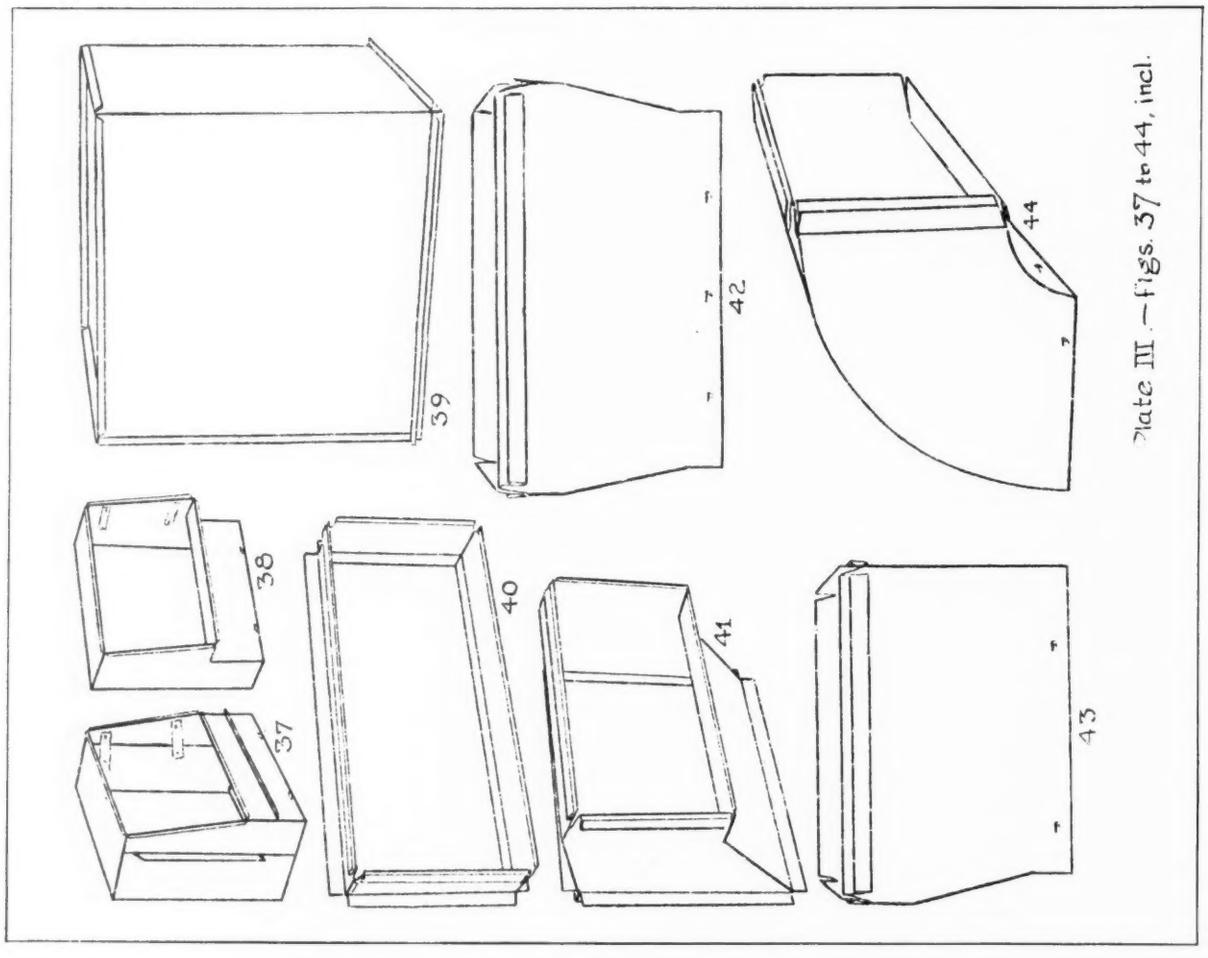
Inches

6x6x6	7x7x7	8x8x8	9x9x9	10x10x10	12x12x12

Table 3.—Single wall pipe and fittings for second floor—IC tin and 28 or 30 gage galvanized iron.

Item	Fig. No.	Sizes Inches
Wall pipes	22	
Wall pipe caps	23	
Stoots:[1]		
Universal	24	
4-in. offset	25	
45° angle	26	
90° angle	27	3¼x10
Center-end	28	and
ackheads:[2]		3¼x12
Horizontal for one register above baseboard	29	
For floor registers	30–32	
Elbows, 90° shortway	33	
Angles, 45° shortway	34	
Angles, 45° longway	35	
Reducers[3]	36	
Increasers[3]	36	

[1]Boots size 3¼ x 10 have 8 in. collars, size 3¼ x 12 have 9 in. collars.
[2]Stackheads size 3¼ x 10 are for 8 x 10 registers, size 3¼ x 12 are for 8 x 12 registers.
[3]Reducers and increasers are 3¼ x 10 on one end and 3¼ x 12 on the other.



Ducts and Fittings—Forced Air and Air Conditioning

Table 5.—Duct, stack, and fittings—galvanized iron.

Item	Fig. No.	Sizes (All Dimensions are in Inches)
Plenum chambers	39	Heights: 12, 18, 24, 30, 36, 42, and 48
Rectangular duct and duct fittings:		
Rectangular duct in 16 and 32 in. lengths	22	
Takeoff collars	40	
Offset starting collars	41	
Duct heads	23	
Increaser sections:		
For two branch lines	42	
For one branch line	43	Depth 8, widths: 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36
Trunk elbows:		
90° shortway	44	
45° shortway	45	
90° longway	46	
Trunk angles, 45° longway	47	
Volume dampers	48	
Splitter dampers	49	
Branch connections:		
Side takeoffs, left	50	
Side takeoffs, right	51	
Top takeoffs, left	52	Ending in stack connections size: 3¼x10, 3¼x12, and 3¼x14
Top takeoffs, right	52	
Transition sections	53	
Transformers	54	Ending in collar sizes 6, 7, and 8
Wall stack and stack fittings:		
Wall stack	22	Lengths: 6 to 96, inclusive; sizes: 3¼x10, 3¼x12, and 3¼x14
Stackheads, horizontal, for one sidewall or baseboard register	55	Stack Size / Register Size: 3¼x10 — 10x4, 10x5, 10x6, 10x8; 3¼x12 — 12x4, 12x5, 12x6, 12x8; 3¼x14 — 14x4, 14x5, 14x6, 14x8
Stackheads, for floor registers	56	Stack Size / Register Size: 3¼x10 — 10x4, 10x6, 10x8; 3¼x12 — 12x4, 12x6, 12x8; 3¼x14 — 14x4, 14x6, 14x8
Stack boots:	24	Round Collar Size
Universal	26	3¼x10 — 6
45° angle	27	3¼x12 — 6, and 8
90° angle	28	3¼x14 — 6, and 8
Center end boot		
Stack elbows and angles:		
90° elbow, shortway		
Round throat	44	
Square throat	33	3¼x10, 3¼x12, 3¼x14
45° angle, shortway	34	
90° elbow, longway	57	
45° angle, longway	35	
Reverse stack elbows:		
Left	58a	3¼x10, 3¼x12, 3¼x14
Center	58b	
Right	58c	
Stack reducers	36	3¼x14 to 3¼x12; 3¼x12 to 3¼x10
Miscellaneous fittings:		
Volume dampers	48	3¼x10, 3¼x12, 3¼x14
Splitter dampers	49	
Top Collars	6	
Stub collars	7	Diameters: 6, 7, and 8
Cold air screen, round	59	
Quadrant dampers	60	
Air conditioning side rail	16	Widths: 8, 10, and 12
Takeoffs, square to round:		
Top takeoffs	61	Collar diameters: 6, 7, and 8
Side takeoffs	62	
"S" hooks:		
Single	63	Length 36
Rigid	64	Length 36
Angle	65	Length 60
Connecting cleats	66	Lengths: 8, 10, and 12

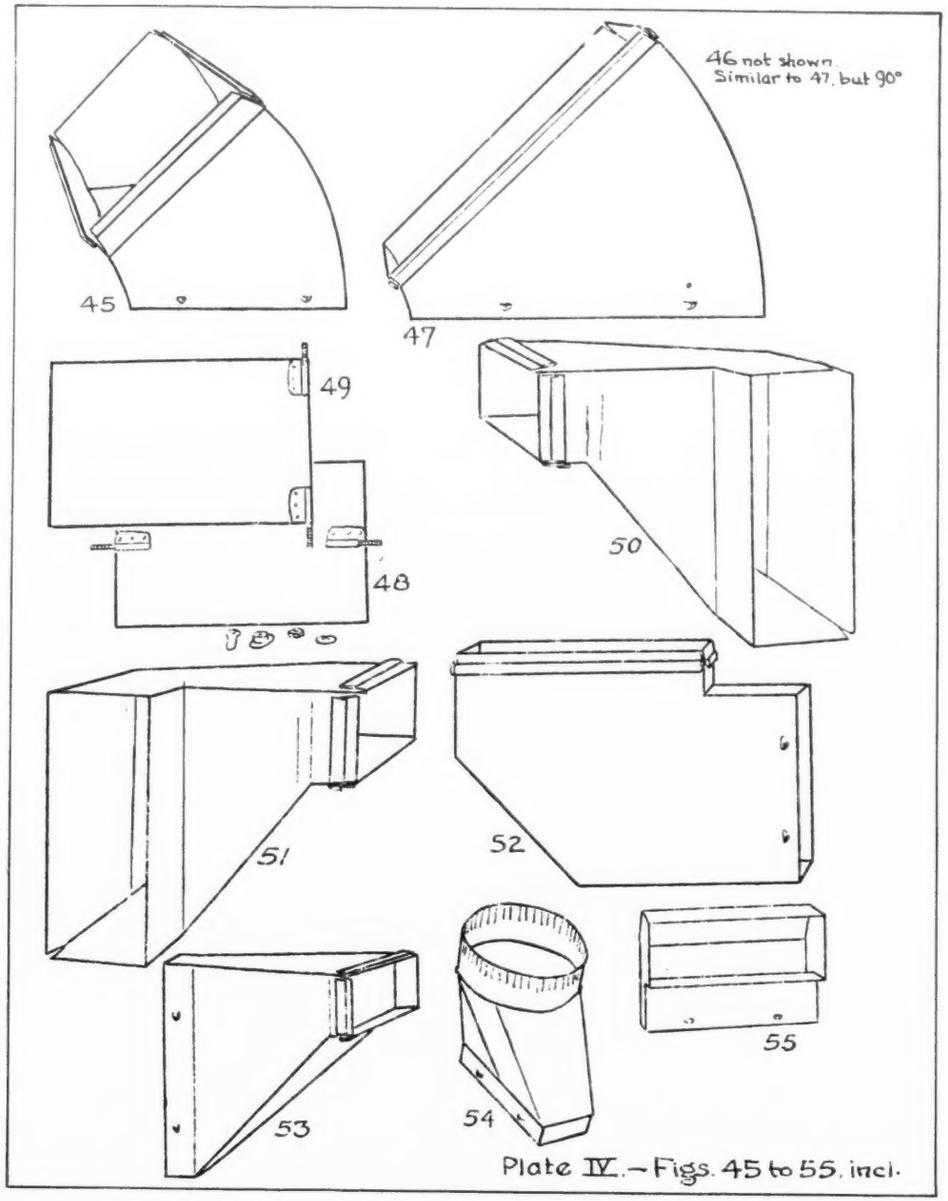


Plate IV.—Figs. 45 to 55, incl.

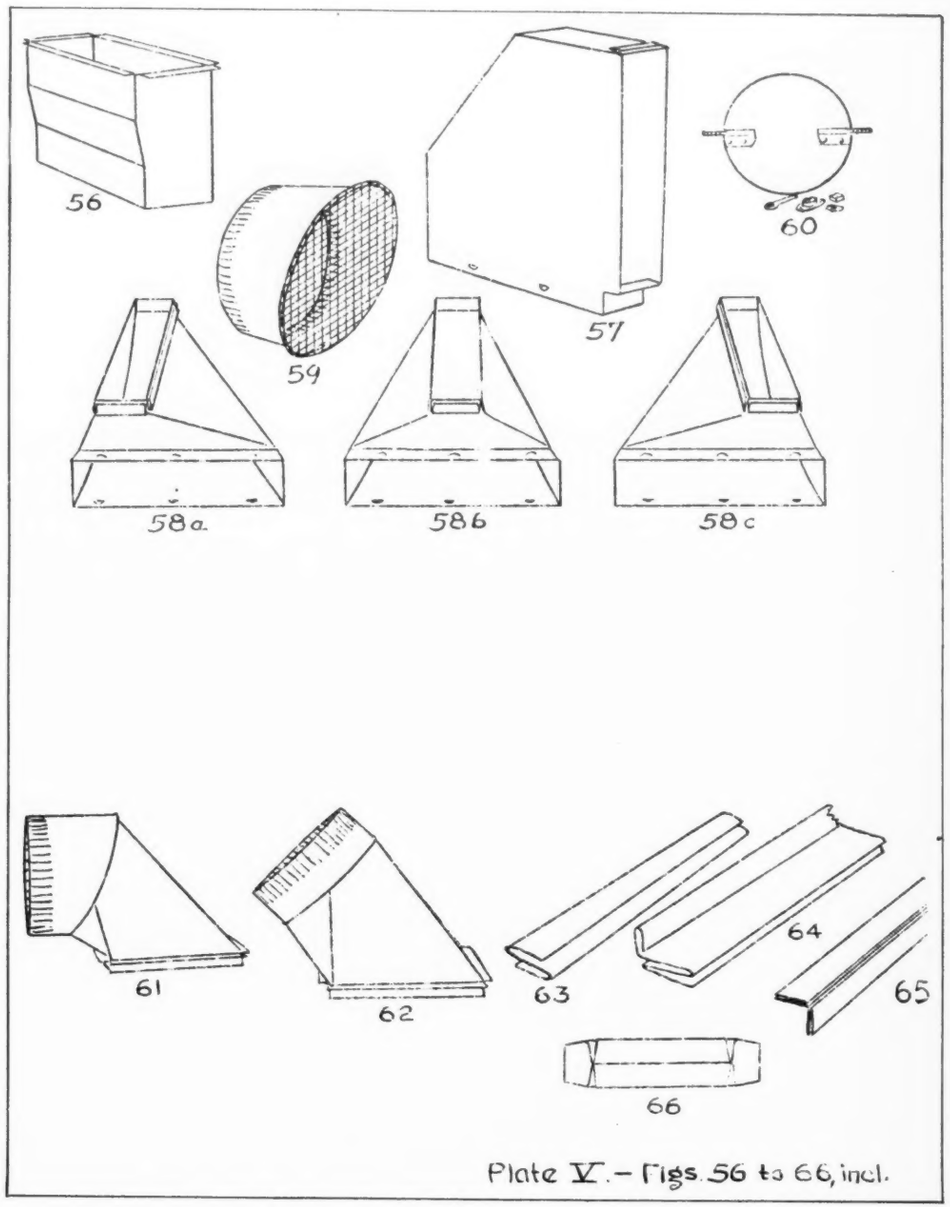


Plate V.—Figs. 56 to 66, incl.

Ducts and Fittings—Defense Housing Projects

Table 6.—Special fittings for defense housing projects—galvanized iron.

(IMPORTANT—The items listed below are to be made only on demand for use in defense housing projects. They are provided solely to permit the use in defense housing projects of 8 x 6 and 8 x 4 floor, sidewall, and baseboard air conditioning registers and grills).

Item	Fig. No.	Sizes (All Dimensions are in Inches)
Wall stack and stack fittings:		
Wall stack	22	Lengths: 6 to 96, inclusive
Boots:		
Universal	24	Stack size: 3¼x8 Collar size: 5 or 6
45° angle	26	
90° angle	27	
Center-end boot	28	
Elbows, 90° shortway		
Round throat	44	Stack size: 3¼x8
Square throat	33	
Angles, 45° shortway	34	
Elbows, 90° longway	57	
Angles, 45° longway	35	
Reverse elbows		
Left	58a	
Center	58b	
Right	58c	
Stackheads:		Stack Size — Register Size
Horizontal for one sidewall or baseboard register	55	3¼x8 — 8x4 or 8x6
For floor register	56	3¼x8 — 8x6
Branch connections:		
Side takeoffs, left	50	Ending in stack connection size 3¼x8
Side takeoffs, right	51	
Top takeoffs, left	52	
Top takeoffs, right	52	
Transition sections	53	
Transformers	54	Collar size: 5 or 6

Table 7.—Registers, etc., for gravity systems.

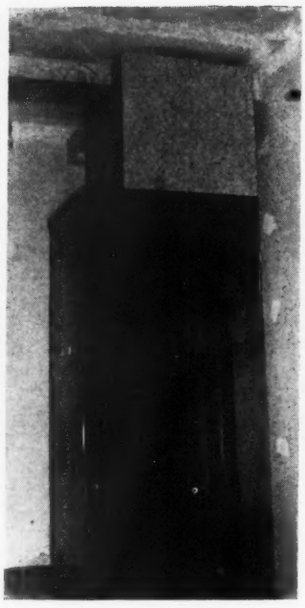
Kind	Size (In Inches)			
Registers:	Register	For Round Pipe Size	Register	For Round Pipe Size
Floor	8x10	8	16x18	16
	9x12	9	18x20	18
	10x12	10	20x24	20
	12x14	12	22x24	22
	14x16	14	24x24	24
Horizontal sidewall	8x10		8x12	
		Base Extension		Base Extension
Baseboard	8x10	2¼	9x12	3¼
	8x12	2¼	11x13	5¼
		Registers		For Round Pipe Size
Cold air faces	8x14	10x12		10
	6x30	8x24	12x14	12
	8x30	10x24	14x16	14
	10x30	12x24		16
	12x30	14x24		18
	14x30	18x24		20
	18x30			22
	20x30			24

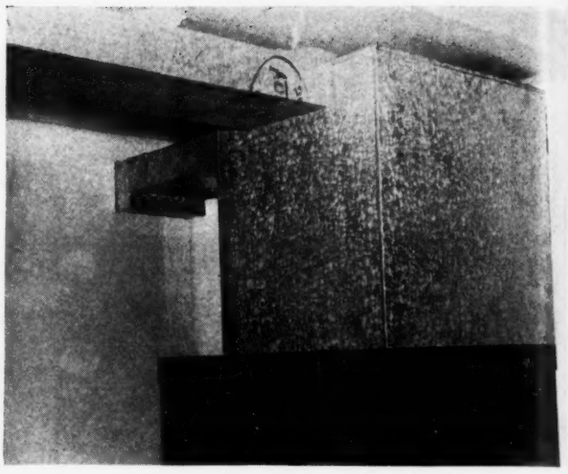
Table 8.—Registers, etc., for forced air and conditioning systems.

Kind	Size (In Inches)						
Sidewall registers Baseboard registers	8x4	10x4	10x6	12x4	12x6	14x4	14x6
	8x6	10x5	10x8	12x5	12x8	14x5	14x8
Sidewall or baseboard grilles or intakes	8x4	10x5	12x4	12x8	14x6	24x5	30x5
	8x6	10x6	12x5	14x4	14x8	24x6	30x6
	10x4	10x8	12x6	14x5	24x4	30x4	
Floor registers and faces	6x8	6x10	4x12	8x12	6x14		
	4x10	8x10	6x12	4x14	8x14		



Front wall—two panels; end—one panel and one gable; partitions built in place; mill work shop fabricated. Thus not truly "demountable" but does minimize field carpentry.





Two views of the plenum and straight out branches. Note use of a baseboard register box cut off below usual frame. If many houses are built a special box will be used. Foto 4.

58 Pounds of Duct Work

[Defense House Heating]

IN Buffalo, New York, Sectional Garage Works, a local sectional building fabricator, has erected a number of low cost, small homes of the type shown in the photographs and plans for defense workers in Buffalo plane plants.

But from many years past experience in offering sectional houses to Buffalo area home buyers, Sectional Garage Works is not underestimating the importance of good heating—rather, the heating system included in these houses is one of the selling features.

To meet Buffalo's long, cold winter season, the heating plants in these houses are forced warm air—gas-fired when the houses pictured were built last winter—probably coal-fired under the gas order. The pictures and the plan show details of the heating installation.

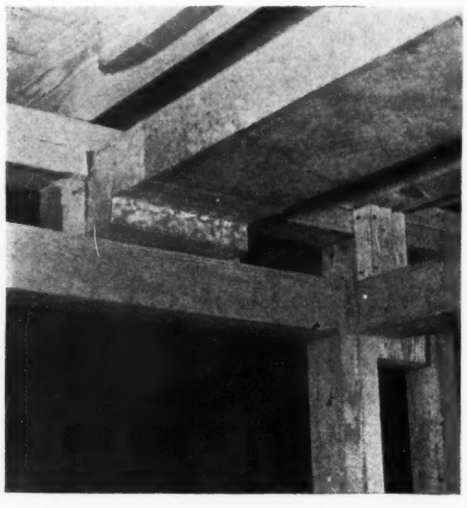
These heating plants were especially designed for these houses by George Adema of N. M. Adema & Son, to fit the space allotted in the first floor utility room and to keep the amount of material required for duct work at a minimum in order to minimize installation labor.

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That the plan does meet such minimum costs is emphasized by a check which showed a total of 58 pounds of galvanized iron used in the system photographed. This 58 pounds includes the plenum and all ducts up to the registers.

To keep installation time at a minimum, the plenum was made complete in the Adema shop; so were the individual ducts to the living room and dinette and the three-branch run to the bed rooms and bath. Each of these pipes was erected completely assembled as shown in the photographs. One mechanic and one helper fabricated all the duct work and plenum in the shop and set the furnace and erected the duct work in eight hours time.

One of the photographs shows the back of a register box. These boxes are standard baseboard register boxes with the top cut off to take the register straight out instead of through the face. The



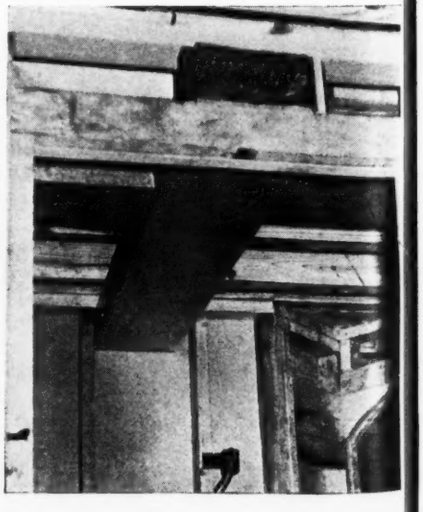


Foto position 5 & 1—
Two views of the main which serves two bed rooms and the bath (see plan). Complete unit hung as one piece; then register boxes were slipped through framing and screwed to pipes. Note another view of cut-off register box.





Left is the living room register and, right, living room cold air (only return in house). Directly above one another. Directional flow registers used to obtain proper air distribution. Foto Position 2 & 3—

stack end of the box was metal screwed to the branch pipe. The use of these boxes also shows how it was possible to erect the three-way main as a unit—only the boxes meet the framing so the duct is clear of the partitions and could be hung in place and then the register boxes slipped through the framing and screwed to the pipe.

The branch is 3½ by 10; the register box 10 by 6—a better combination might have been a 10 by 4 box, but with cost saving of most importance the stock boxes were selected. Registers are directional flow to get air distribution throughout the rooms.

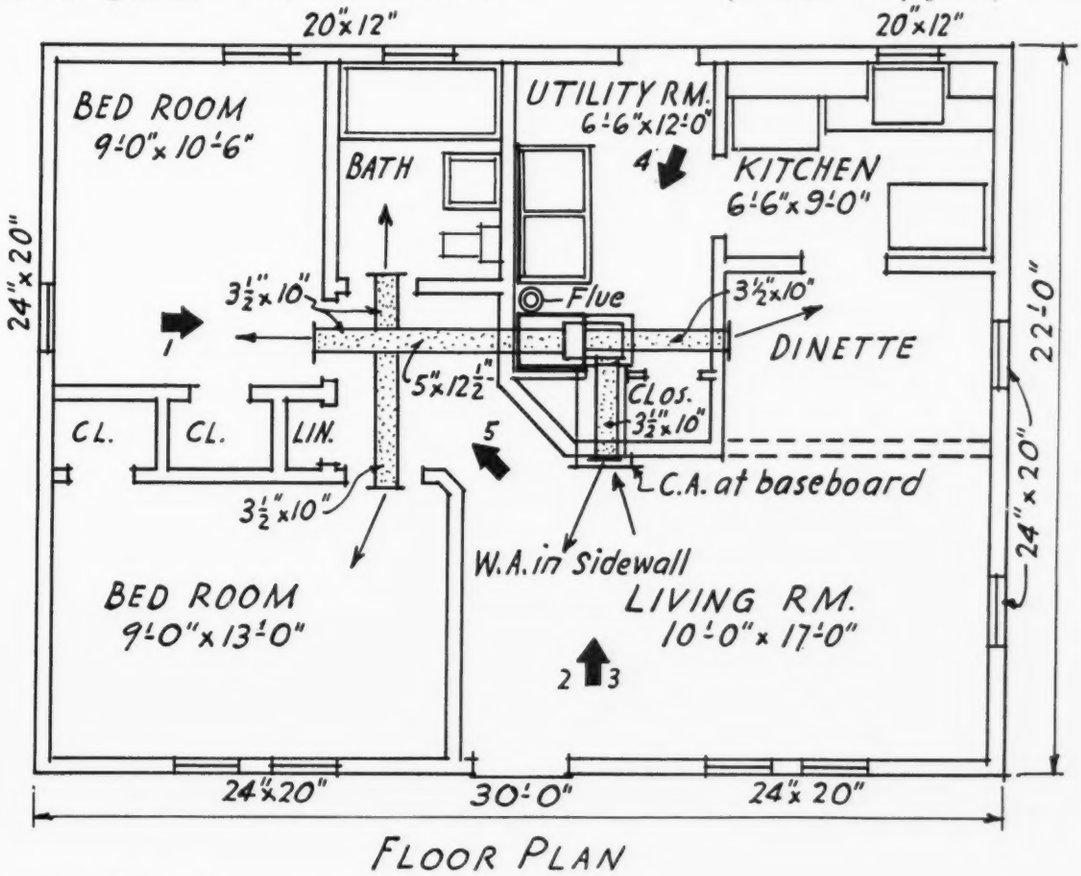
As the plan shows, there is only one return air —from the living room. A short metal duct connects the grille box with the casing. The box is on the floor; so is the duct, so all space above the pipe in the utility room can be used for shelves, cabinet, etc., if desired.

The furnace used is a gas-fired, Pennsylvania Furnace and Iron Company, upright with 45,000 Btu available at the register; 600 cfm delivery from the blower. The 30-inch deep casing and blower on the floor makes connection from return grille to casing a simple uniform-section pipe to the intake side of the blower.

These installations were sold for just over $200.

This installation was of especial interest to the editors because of the publicity current last

(Continued on page 88)



FLOOR PLAN





Above — Exterior of the Guardian funeral home and office and parlor showing air inlet grilles with special diffusion to spread air uniformly over the space served. The plan following shows location of the units in each room.



Evaporative Cooling In a Funeral Home

By B. P. Rhinefort

Sales Manager, American Metal Products Co., Fort Worth

EVAPORATIVE cooling has become exceedingly popular during the past several years. While the evaporative cooler is not a complete air conditioning unit, practically every type of business as well as residences, hotels, auto courts, funeral homes and other places where people mingle, have adopted it as an inexpensive and satisfactory method of cooling.

The principal objection to evaporative cooling has been that it increases the humidity. True, when stale air is recirculated over and over, accumulating germs, dust, odors, smoke and the moisture from the human body, then humidity is not desirable. However, by bringing in clean, washed outside air, with ample openings for its escape, giving proper circulation and distribution of this new air, then a certain amount of humidity is most pleasant.

This fear of humidity was one of the objections raised against evaporative cooling by Mr. Louie C. Hartwig, President of the Guardian Undertaking Co., of Fort Worth, Texas, for the area around Fort Worth does not enjoy the dry climate the western part of the state or states west or northwest of Texas.

Since evaporative cooling is based on the principle of transferring sensible (which is dry bulb) heat to the latent heat (wet bulb), a high wet bulb means that the cooling differential for evaporative cooling is not very great around Fort Worth. Too, in an assembly of people who have been exercising by walking in a temperature of 100 degrees or better, their body temperature has risen to such a point that perspiration is active. This adds to the air moisture content in a crowded room or chapel. This condition must be overcome in evaporative cooling the same as with mechanical refrigeration.

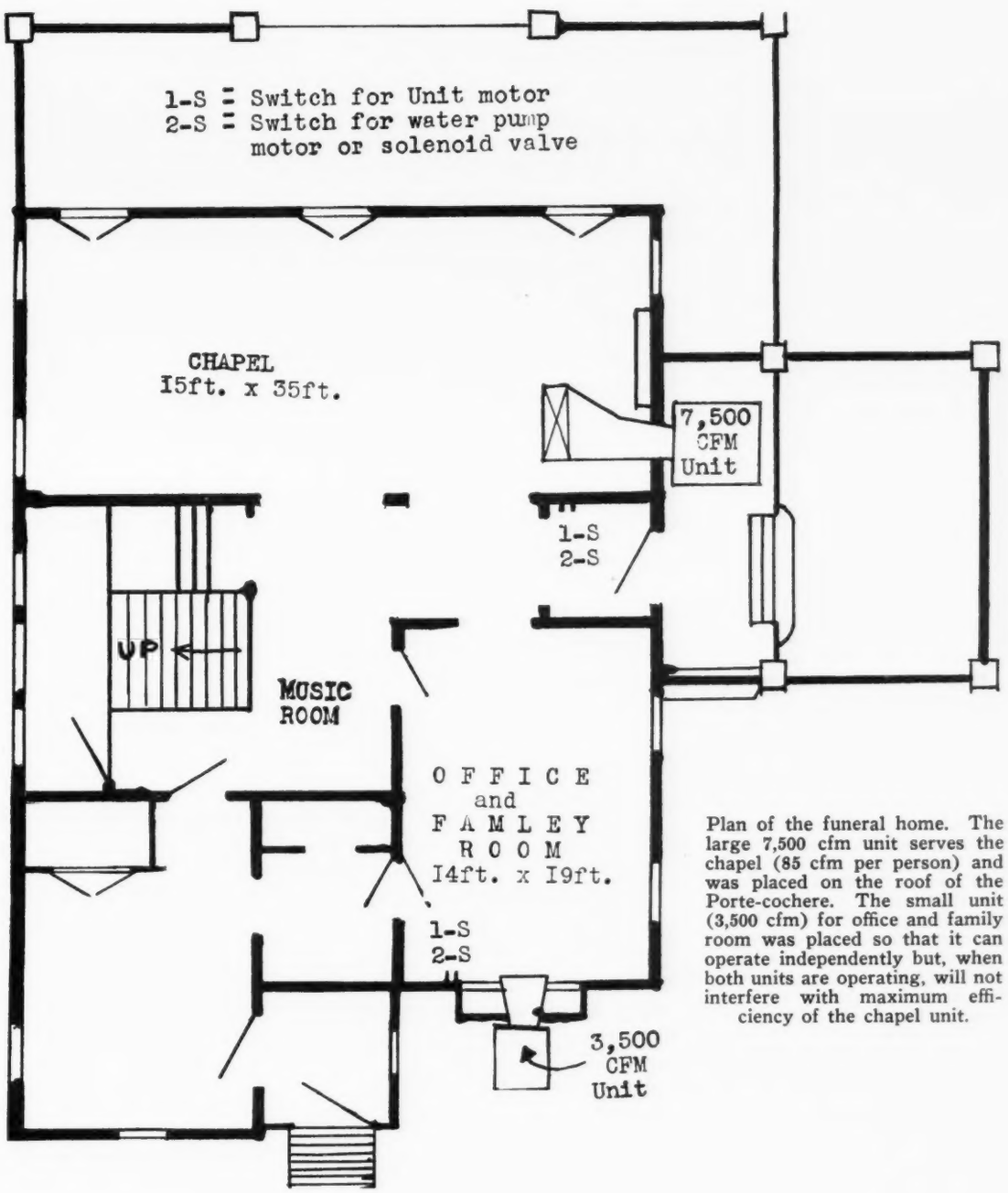
The accompanying pictures and sketch show the funeral home installation. The 7500 cfm unit that furnishes cooling for the chapel, seems too large for this room (dimensions 15 feet wide and 35 feet long with 9½ foot ceiling) which gives 4,987 cubic feet. The seating capacity is 85 people and allowing approximately 85 cubic feet of air per minute per person necessary for this

climate) a unit of this size should be selected. In all installations of this nature total seating capacity is the determining factor rather than the heat loss. This 85 cfm per person takes care of the building heat loss. The maximum seating capacity instead of the average or minimum attendance is used. In climates where the wet bulb is lower, as in west Texas, in this same seating capacity chapel we would have figured only 60 to 65 cubic feet per person.

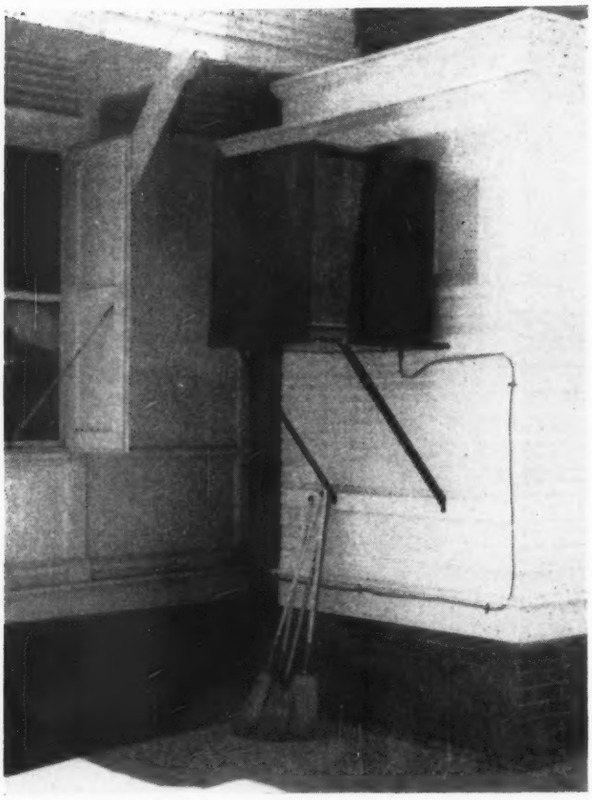
In this chapel with the volume of air (7500 cfm) delivered into this area, it was necessary to be careful to distribute this air evenly from the front. This was accomplished by using a long, narrow grille with both deep horizontal and vertical vanes. These are adjusted to diffuse and spread the air out, at the same time seeing that every row of seats receives its share of cool air.

At the rear of the chapel there are two large windows and one French door which are opened during services, to allow the free exhaust of air. This is important in evaporative cooling—the same amount of incoming air must be exhausted out of the building after it has passed through the room and served its purpose. There must be no re-circulation of air in the room, as recirculated air will build up humidity and make an uncomfortable condition.

The unit for the chapel was located on the roof of the Porte-cochere and care was taken that the unit be well insulated, not only at its base but metal duct connections as well. One inch felt in three strips three inches wide was placed under the unit and four inch canvas duct connections made from unit to the duct. This metal duct which extended from the unit through a window



Plan of the funeral home. The large 7,500 cfm unit serves the chapel (85 cfm per person) and was placed on the roof of the Porte-cochere. The small unit (3,500 cfm) for office and family room was placed so that it can operate independently but, when both units are operating, will not interfere with maximum efficiency of the chapel unit.



The small unit was placed at the rear of the building on a special shelf which puts the unit out of the way. Connection to the office is by a short, straight duct.

on the second floor (glass being removed and panel board being substituted) then through floor to ceiling of chapel, carries a velocity of 1700 feet per minute. A one H. P. 110/220 60c motor drives a 21-inch D. W. squirrel cage blower.

The water to this unit is controlled by a line voltage solenoid valve with switch located in the office so that the water can be cut off should humidity rise, or too much cooling effect be encountered. The water for use in the unit is connected for "run through," in other words, fresh water only is used. No water is allowed to accumulate in the sump and be recirculated. The reason for this "run through" of water is that this unit is not in constant use and if water is allowed to accumulate in the sump the water becomes stagnant and accumulates odors. The discharged water from the unit is used to water the lawn.

Office Unit Coordinated With Large Unit

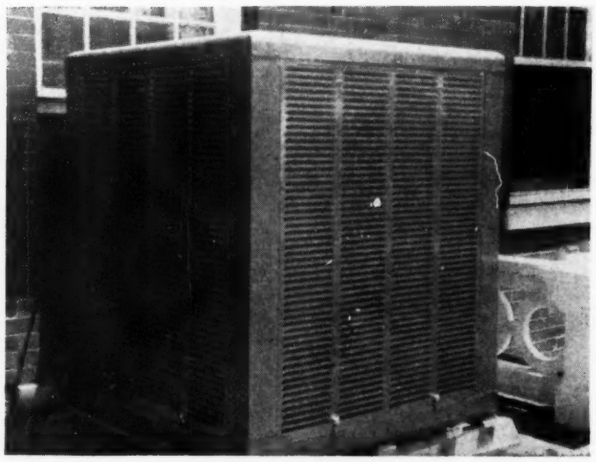
The office, 14 feet wide, 19 feet long with 9½-foot ceiling, contains 2,527 cubic feet, and is used for overflow gathering from the chapel. A 3,500 cfm unit was installed. This unit is larger than necessary when used for office only, but for the additional use, it was necessary to install this larger unit. The location of this unit was important—when the chapel unit is not being used the exhaust air from this unit must be taken care of independently; yet when the chapel unit is running both these units will not conflict with each other and must still do a complete cooling job for the chapel, hall, family room and office.

The unit used to cool the office is in constant use. This unit has a 16-inch D. W. blower driven by a ⅓ H. P. 110/220 60c motor. The water used for cooling in this unit is recirculated by a small centrifugal pump. This pump motor is controlled by a separate switch. The water supply level in the sump of the unit is kept constant by a float valve. A stand pipe drain is installed in the bottom of the unit so in case the float valve fails the surplus water will overflow into this drain. A drain plug in the bottom of the sump permits ready drainage. This is done at least once every two weeks. Failure to drain the recirculated water creates unsatisfactory operation such as excessive obnoxious odors. Dirt, dust and insects sieved from the air in operation are carried to the sump by the water draining from the pads that are placed in unit for heat transfer.

Can Be Used for Straight Ventilation

Both of these units are so installed electrically that they can be used for cooling by the use of water over the pads or the water can be turned off and the unit used as a ventilating medium. This is desirable in early or late summer when air movement is all that is required, and the use of cool outside air is sufficient to give comfortable cooling.

Mr. Hartwig liked the results so well that he ordered two additional units installed in his living quarters on the second floor. The display room which is located on the second floor will be cooled by evaporative cooling this coming year. The question of humidity effect on different fabrics used in caskets deferred this, but Mr. Hartwig is convinced that by keeping humidities low evaporative cooling is not harmful to fabrics.



The large unit on the roof (see exterior of building on first page) is thoroughly insulated and is soundproofed by 3 inches of felt under the unit and a canvass connection to the duct which runs through a window and through the floor and comes out through the chapel ceiling.

OPEN for DISCUSSION

Readers having had experience with the problem under discussion are invited to submit their ideas.

Earth-Floor Cold Air Plenums [Part 3]

While not strictly an earth-floor cold air plenum in the sense that the whole floor area is the plenum, this discussion is of interest because it describes a type of house which seems to be favored in several parts of the country. B. L. Schwartz, a frequent contributor to the Artisan, engineered the installation and prescribed the remedies outlined in the text.

BACK in 1936, the John T. Pedan house was remodeled. Part of this operation included the installation of a gas-fired winter air conditioning system.

An analysis of the plans will show that there are three separate floor levels in the house; with no basement as such. The heater room is just two steps lower than the ground floor level, which includes the dining room, kitchen, hall and toilet. Above these rooms is the first floor with living room, a book room and the master bedroom and bath. Finally, the second floor level includes two additonal bedrooms and a bath. The entire arrangement is worked out in an ingenious manner; and makes a very nice set-up.

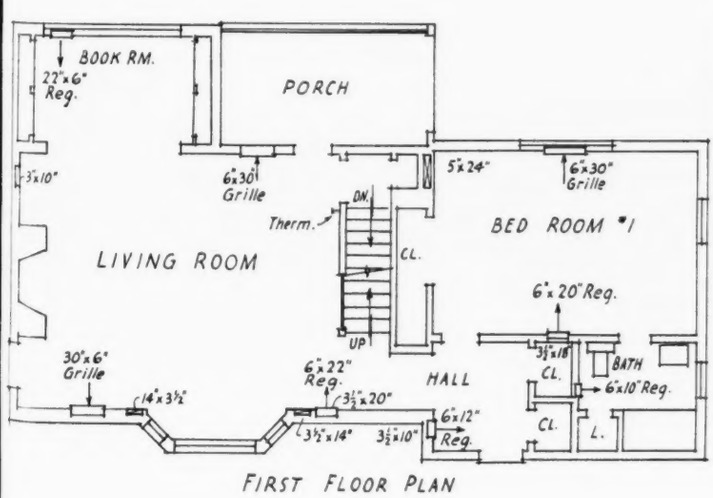
This residence is located on the Camp Meeting Road in Sewickley Heights near Pittsburgh, Pa. The architect on the job was Lamont H. Button; one of Pittsburgh's best.

The unit chosen was a No. 3-AC-77 Bryant Winter Air Conditioner complete with thermostat, blower, limit control, automatic humidifier, an input rating of 120,000 B.T.U.'s per hour and is a completely enclosed, self-contained assembly.

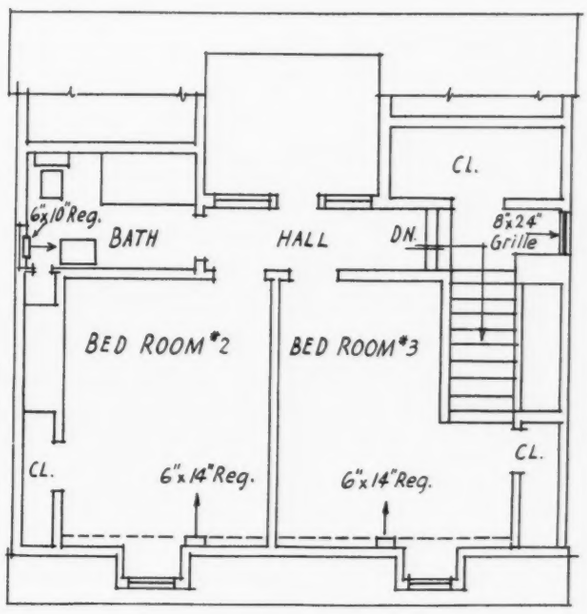
A system of supply ducts following standard methods of accepted practice was worked out and installed. The supply registers for the ground

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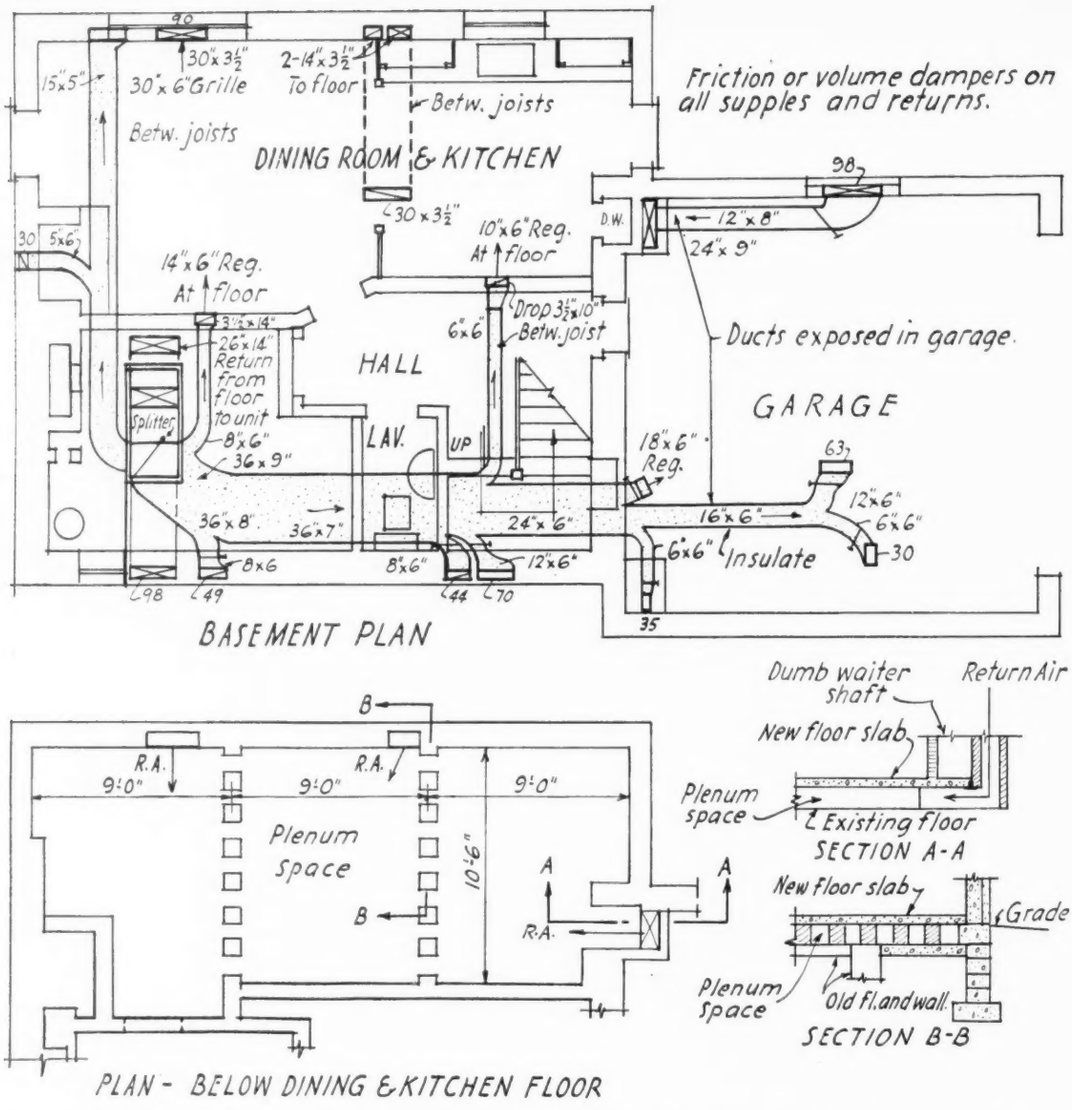
Below are first and second floor plans showing registers and returns. The one second floor return (in hall) is particularly interesting as it serves the whole floor. These plans should be compared with the heating plan following, to visualize the plenum.



FIRST FLOOR PLAN



SECOND FLOOR PLAN



The space under dining room-kitchen is a cold air plenum into which all return air is brought as shown in the details. The heater, in adjoining room, takes blower air from this shallow space. The author believes some floor panel heating effect is secured from the warm air ducts beneath the living room floor.

floor were all brought down to the ground or base level in order to assure proper distribution of heated air for these rooms. Similar register locations were used for the other rooms in accordance with good practice.

Earth-Floor C. A. Plenum

But the return air side of this installation is somewhat different from standard practice. Since there is no basement, some other means had to be worked out to bring the return air back to the unit. This was accomplished by creating a return air plenum below the dining room and kitchen; using the old basement floor for the bottom of this plenum space and making a new floor for these rooms by pouring a concrete slab one building block above the old floor.

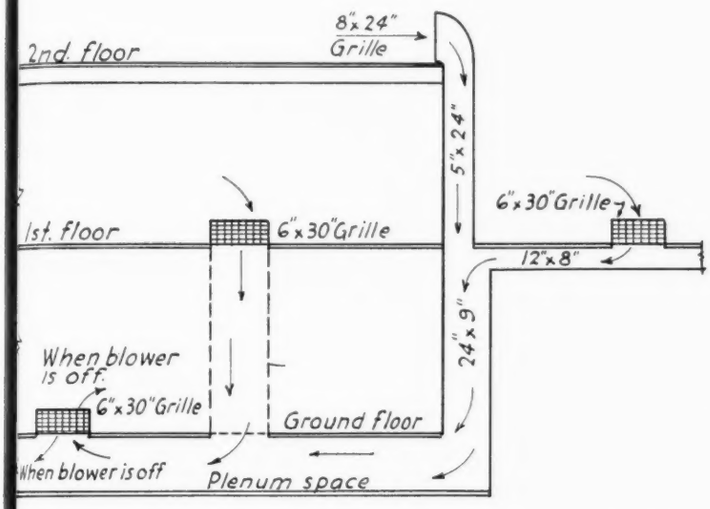
All returns were brought into this plenum space except one in the outside wall of the living room on the first floor. As noted on the plans, this was brought back between the joist spaces and tied in with the common return from the plenum space.

It will be noted that there is but one return from the second floor. This is located at the end of the common hall from which the two bedrooms and bath lead. It is also of interest to note that all supplies on this floor are on the outside walls, located to cause a flow of warm air across the entire room before the air follows a path to the return grille at the end of the hall.

The first floor is more in accordance with standard accepted methods of heating practice. There are five supply registers and three return grilles. It will be noted that the return from the bed room on the first floor ties in with the return duct coming down from the second floor; this being a 24 x 9-inch duct chased in the wall during construction. The thermostat is located in the living room as indicated.

The ground floor is taken care of with two supplies and one large return for the dining room and kitchen. In addition to this, there is a supply outlet for the garage.

Results obtained after the system was put into operation were satisfactory with one outstanding exception. This was the return air grille in the dining room. At times it seemed to behave in a perfectly normal manner; but at other times it literally poured cold air into the room.



The dining room return on the ground floor empties into the same return air plenum space as do the returns from the living room and bedroom on the first floor, as well as the return from the second floor. Result—when the blower was idle first and second floor cold air poured out dining room grille. Correction—the dining room return was sealed up. Ground floor return air now becomes air for combustion for the heater.

An investigation revealed that there was a very definite flow of cold air *out* of this return when the blower was *not* in operation; but that this condition did not exist when the blower was running. This peculiar phenomena was caused by the pressure of the return air from the upper levels (during periods of non-operation of the blower) causing an outward flow of air through the lowest outlet; which happened to be the one in the dining room.

Having discovered the cause of the trouble, there remained but one way to stop the flow of return air out of the grille. The outlet was sealed up permanently; since we couldn't change the laws of nature.

No Direct Return from Ground Floor

It will be noted that there is now no return air outlet from this ground floor level. The heater undoubtedly acts as a relief outlet for this floor, as it is some sixteen inches below the dining room level and must get air for combustion purposes from some place. As the heater room is rather small, we feel that this analysis is basically correct. At any rate, the ground floor rooms now are heated in a perfectly satisfactory manner as is the rest of the house. There is no apparent flow of return air at any point which might result in a draft complaint or actual condition. The floors seem to be adequately warm at all times. The fact that the return air plenum below the ground floor is small and well sealed against any outside air infiltration, undoubtedly accounts for this satisfactory condition.

Another condition which we were somewhat concerned with, was the possibility of getting some objectionable air motion (drafts) across the living room due to the location of the returns. These fears proved to be groundless; as no such condition was encountered. The front wall of the living room would have borne the brunt of any trouble had such air motion occurred; due to the fact that there is no warm air supply any where near the lower, left hand corner of this room. There is also a large return from this corner which caused us a little preliminary concern at the time the job was laid out. We were afraid that this return might pull more than its normal share and cause a drafty condition across the floor of the living room.

Living Room Has Warm Floor

We now feel that the salvation of this particular setup lies in the fact that the main supply ducts from the heater run directly beneath this portion of the living room; and by some plain and fancy floor or panel heating effect, warms the air to prevent any feeling of draft or undue air motion. The large supply register at the foot of the stairs also does its share of heating any air which may find its way down the stairs and which might in turn be drawn in by the large return in the living room closest to the heater. Without such a setup, the writer believes that a condition of "draft" would probably result.

Since the above job, we have noted several cases where returns from two different floor levels cause a reverse flow of return air *out* of the lowest grille. In all cases so noted, the returns were in adjacent stud spaces and emptied into the same joist space. The only correction in such cases where found was to close off the lower return intake. Where separate connections are made to ducts leading to the heater, no such trouble exists.

Plenums Require Sealing and Balancing

The bearing this reported installation has on the discussion of earth-floor plenums is—such plenums must be sealed tightly against any outside air infiltration; the plenum must be of a uniform temperature to avoid cold floor areas; means must be provided to balance all returns emptying

(Continued on page 89)

		1	2	3	4	5	6	7	8	9	10	11	
		Room Dimensions							Calculated Pipe Area Required for—				
	Room Name	Length Ft. or Exposed Side	Width Ft.	Height Ft.	Glass Area Sq. Ft.	Ceiling Area Sq. Ft.	Cubic Content Cu. Ft.	Number of Exposures	Glass = Area / Factor	Wall = Area x Ceiling Height / 60	Ceiling = Area / Factor	Cubic Content = Cu. Ct. x Exposure	Required Total Btu. 1,000's
1	Living	14	16.5	7.5	45	231	1730	2	3.0	3.8	2.5	2.9	12.2
2	Dining	10	13.5	7.5	30	135	1010	2	2.0	2.9	1.5	1.7	8.1
3	Kitchen	10	10	7.5	40	100	750	1	2.7	1.3	1.1	.9	6.0
4	Bed. No. 1	10	11	7.5	30	110	825	2	2.0	2.6	1.2	1.4	7.2
5	Bath	6.5	5.5	7.5	10	36	270	1	.7	.8	.4	.3	2.2
6	Bed. No. 2	11	12	7.5	30	132	990	2	2.0	2.9	1.5	1.7	8.1
													43.8

Time Saving, Slide Rule Heat Loss Calculation

FOR the heating man who makes his heat loss calculations on the slide rule, George Nichols, Jr. of Rundell & Weigel, Buffalo, N. Y., offers the following method as a time saver.

The chief difference between this method and others is that subtraction to get net wall from gross wall minus glass area is omitted. Mr. Nichols believes this subtraction is frequently the cause of errors and takes additional time. Two columns are thus eliminated from the heat loss sheet—Net Wall Area and Gross Wall Area—since the wall loss is read directly off the rule by adding the room dimensions if there is more than one exposure.

Time is saved, believes Mr. Nichols, because the partial Btu losses are read off the "D" scale of the rule as fast as they can be entered in the column.

The feature of the method centers around columns 8, 9, 10, 11. In column 8 for glass, a special tabulation shows the factor to be used for common constructions. This is shown in Table 1. These factors divided into the glass area give the room heat loss in thousands of Btu.

Having this Table 1 of glass factors to be used with common types of construction and assuming the usual frame wall the procedure is — divide glass area by 15 and divide gross wall area by 60. The result is the same as if glass is divided by 12, glass area is subtracted from gross wall area and net wall area is divided by 60.

The step-by-step slide rule procedure is—Column 1, 2, 3, 7 are entered on the Data Sheet. Using set position on slide rule of 15 on the C scale over 1 on the D scale, read the values for Column 8 on the D scale opposite the values shown in Column 4 on the C scale.

Next obtain Column 9 (wall loss) by setting 60 (Standard Code wall factor) on the slide rule C scale over 75 on the D scale. Entries for column 9 will be found on the D scale under the length of the room exposed wall (Column 1 or 2 or columns 1 plus 2) on the C scale. If, for instance, the living room has two exposures add columns 1 and 2 (14 plus 16.5) equals 30.5. Then 30.5 on the C scale shows 3.81 on the D scale opposite.

Now multiply columns 1 times 2 to obtain square feet of ceiling area (column 5) and divide column 5 entry by 90 to get entry for column 10. Set 90 on C scale over 100 on D scale and read off to get column 10.

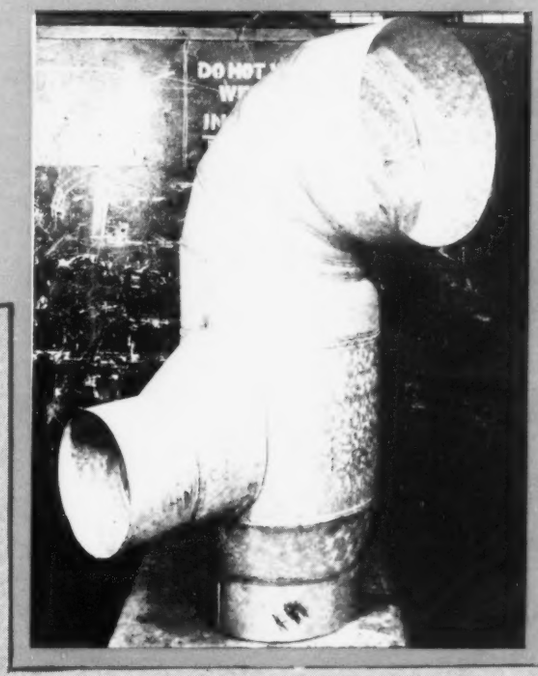
Column 6 is next obtained by multiplying ceiling area (column 5) by room height (column 3). Column 11 is figured as in Standard Code which says cubic content divided by factor for number of exposed walls.

We add columns 8, 9, 10, 11 to obtain total heat loss in thousands of Btu.

TABLE 1

Type of Wall	Glass Factor Formula	Glass Factor
Standard Frame Wall	$12\left(\frac{60}{60-12}\right)=$	15
9 in. Brick Wall, Plastered on 1 side	$12\left(\frac{40}{40-12}\right)=$	17.1
13 in. Brick Wall, Plastered on 1 side	$12\left(\frac{52}{52-12}\right)=$	15.6
Frame Wall with 3½ in. of Fill Insulation	$12\left(\frac{140}{140-12}\right)=$	13.1

SHEET METAL SECTION



DEVOTED TO SHEET METAL CONTRACTING AND FABRICATING

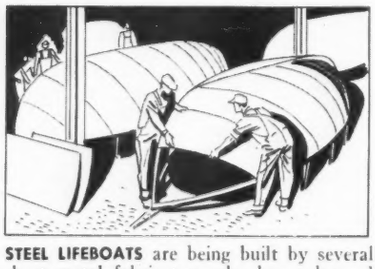


2.

PROOF OF FINISH STABILITY—Test sections of galvanized sheet exposed to weather in Florida for 18 months. (1) Ordinary galvanized section, with two coats of synthetic enamel. Paint peeled from 90% of surface. (2) U·S·S Paintbond section, with same finish and exposure. Surface excellent, adhesion good.

GALVANIZED SHEETS THAT REALLY HOLD PAINT SAVE TIME AND TROUBLE

U·S·S Paintbond permits immediate painting and holds paint longer*



STEEL LIFEBOATS are being built by several sheet metal fabricators who have changed over to war production. U·S·S Paintbond is an excellent material for this important application.



YOU CAN SAVE PRECIOUS HOURS, because U·S·S Paintbond is ready to paint the moment fabrication is complete.

IMPORTANT NOTE

The use of steel is restricted to applications necessary to war. But where you have sufficiently high priorities, we can supply the U·S·S Steel Sheets you must have.

REMEMBER when you had to acid etch a galvanized surface, or wait for weather to condition it, before you could apply a satisfactory paint job? U·S·S Paintbond has changed all that. This galvanized sheet has all the qualities of the best zinc-coated steel sheets —*plus* a Bonderized surface that gives immediate paintability and makes paint last much longer.

U·S·S Paintbond holds paint better because the Bonderizing process eliminates chemical reactions between paint and zinc that cause flaking and peeling. The sheet surface is converted to an inert, crystalline phosphate coating, which locks the paint and makes it part of the sheet instead of a mere covering.

Immediate paintability means that you can complete your essential galvanized jobs faster. There's no delay for acid etching or weathering the surface—no need to make a second trip to the job site for painting. U·S·S Paintbond saves trouble for your customers, too, by preventing an untimely need for reconditioning or refinishing.

Investigate this truly paintable sheet as an ideal material for roofing, siding, gutter and downspouts, furnaces, ventilators, ductwork, industrial containers, machinery hoods, etc. Write for our Paintbond booklet, which gives condensed application information.



**Another galvanized sheet with excellent painting properties is U·S·S DUL-KOTE. This sheet is manufactured in the West by Columbia Steel Company and in the South by Tennessee Coal, Iron & Railroad Company.*

U·S·S STEEL SHEETS

CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*

Scully Steel Products Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

UNITED STATES STEEL

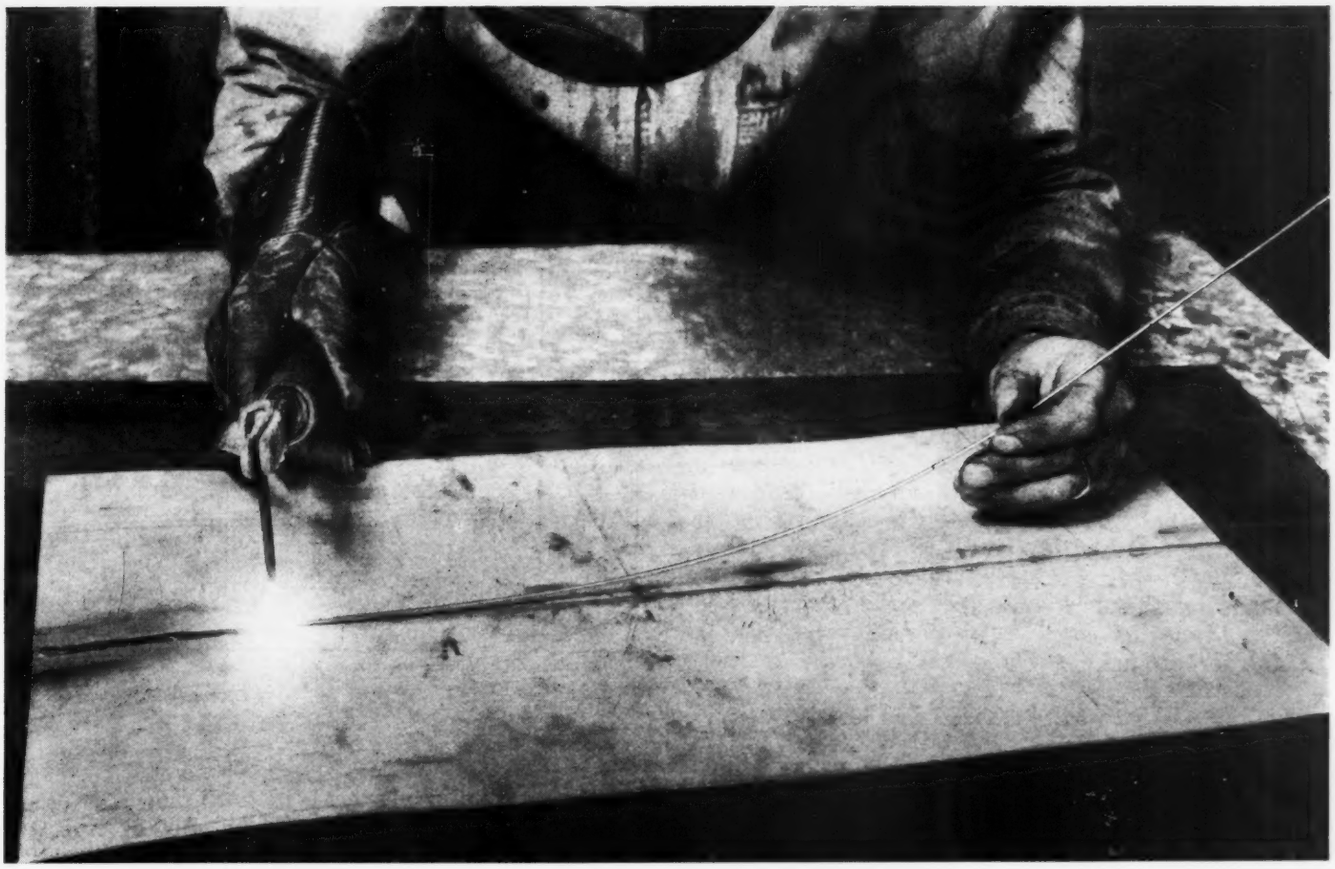


Fig. 2.—Operator Making a Joggled Lap Joint on 18-Gauge Galvanized Sheet.

Welding Light Gauge Galvanized Sheets

By C. A. McClean and A. N. Kugler

General AED

GALVANIZED sheet steel is a construction material of many commercial applications because of its resistance to ordinary atmospheric corrosion. The air-conditioning industry uses tons of this material for ducts; chutes for conveying grains and other dry foodstuffs represent another important field. However, the joining of galvanized sheet steel for these services has always been a problem.

Much Heard About Gaylord Method

Before the development of the Gaylord method, galvanized sheets were joined by riveting and then soft soldered to insure air-tight joints. This method, however, was unsatisfactory due to the solder flux forming zinc oxide in a moist atmosphere, which resulted in early deterioration. As a result of this the Eastman Kodak Company, which has probably the largest individual air-conditioning system in the country, undertook to evolve a satisfactory solution to the problem.

Results of numerous tests pointed to a method, employing the carbon arc and a copper-silicon alloy filler rod, that seemed a close approach to the desired results. However, the heat of welding



Fig. 1.—Various Joints Made with the Carbon Arc and Tin-Coated Copper Alloy Rod. Carbon Electrodes and a Filler Rod May Be Seen in the Foreground.

removed the zinc along both sides of the joint by volatilization, and it was necessary to apply a tin coating over the joint after welding. During further development of this process by T. S. Gaylord of the Eastman metal shop, pure tin was accidentally included in the deposit during welding, and the resultant joint exhibited surprisingly good resistance to corrosion. Further experiments were conducted in which the copper-alloy rod was coated by dipping in molten tin.

Employing this method, it was found that with a little practice, satisfactory welds could be made. This process is covered by Gaylord Patent No. 2,170,019, dated August 22, 1939, and assigned to the Eastman Kodak Company. A license to use this patent and to sublicense others to use it has been acquired by the Wilson Welder & Metals Company. Fig. 1 illustrates several typical joints made by this process. The carbon pencils and the tin-coated copper-alloy rod may be seen in the foreground.

Tin on Rod Re-Covers Base Metal

The successful application of the process, illustrated in Fig. 2, depends on the fact that the heat of a properly held carbon arc is sufficient to melt the filler metal but is not hot enough to volatilize the molten tin coating which flows from the rod. This molten tin acts as a blanket to cover the surrounding base metal during the welding and replaces the volatilized zinc coating. The melting and vaporization points of the various metals involved are shown in the graph, Fig. 3.

Microscopic examination shows that the protective coating adjacent to the weld is made of successive layers of pure tin becoming an alloy of tin and zinc with the zinc content increasing as the distance from the weld increases. On a properly made joint on 16-18 gauge sheet, this strip will be from $\frac{1}{32}$-inch to $\frac{1}{8}$-inch wide on both sides of the weld, as indicated by the arrows in Fig. 4.



Fig. 4.—Joggled Lap Joint. Arrows Indicate the $\frac{1}{8}$-Inch Wide Strip of Amalgamated Tin and Zinc Adjacent to Both Sides of the Joint.

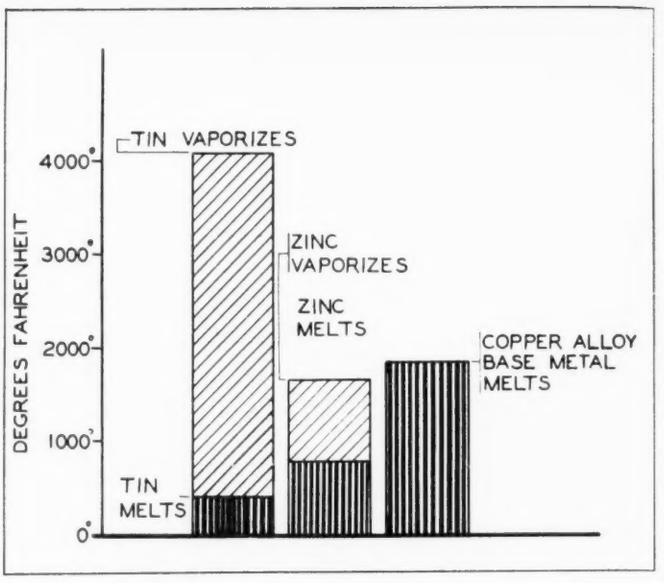


Fig. 3.—Relative Melting and Vaporization Point of Each Metal.

To obtain the proper heat required, the arc must be choked until it appears as a small white spot at the end of the carbon. To produce this arc, hold the carbon pencil on the end of the filler rod until the carbon becomes red for a distance of $\frac{1}{2}$- to $\frac{3}{4}$-inch from the end; then slowly withdraw and proceed. Do not strike the arc in the conventional manner. A long arc results in high heat which will volatilize the tin and cause the weld to have a spongy appearance. As a result, the edges of the joint will be exposed to atmospheric conditions.

Offset Lap Joint Is Strongest

Experimentation proved that the best type of joint for this process was an offset lap (joggled lap) since it offers an easy method of keeping the rod aligned while making the weld. It also offers a method of tacking, as illustrated in Fig. 5, that does not affect the smooth running of the weld. The bottom sheet of the lap helps remove

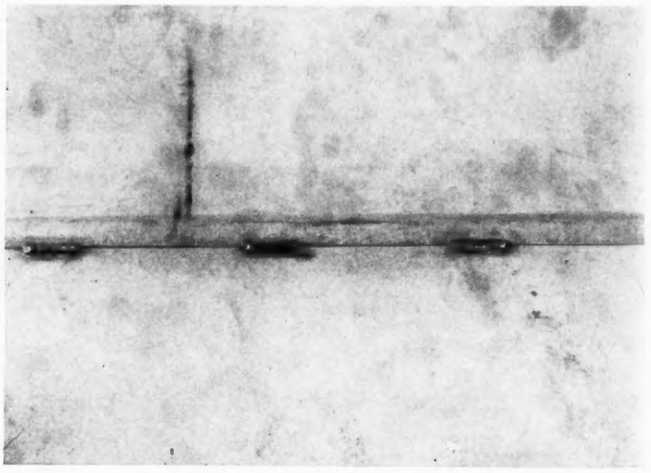


Fig. 5.—Method of Tacking Joggled Lap Joint.

the heat of welding and so aids in preventing damage to the galvanizing of the underside of the top sheet. After the sheets are tacked, the rod is laid in the groove formed, and welding proceeds at the rate of approximately 1 inch in 5 seconds (one foot per minute).

It might be well at this point to mention that although the pressure of the rod is primarily downward, a slight pressure opposite to the direction of welding will force the rod into the molten metal and tend to give a slight increase in the amount of reinforcement. This method has the advantage of being easy to learn.

Compare the joint in Fig. 4 as made by an operator not experienced with this type of work, and the sample in the lower left corner of Fig. 1, which was made by an experienced operator. It is imperative, however, that the operator read the instructions before attempting to try this process as an electric welding operator might tend to hold a long arc. As explained above, the arc length is of vital importance.

Joggled lap joints, however, are not the only type possible with this process. Butt, corner and fillet welds may be made. Fig. 1, lower center, shows the first two types mentioned. By weaving the carbon while welding, a broader, more concave weld is obtained.

Corrosion Resistance Very High

The corrosive resistant properties of joints made by this process have been proved by subjecting samples to extremely rigid tests. Other samples exposed to the elements for more than two years also show no sign of deterioration and have outlasted samples made by other processes. The tensile strength of these joints is very satisfactory as proved by numerous tests which indicate an average of 51,000 psi is obtainable.

This method of joining galvanized sheets permits changes in design of galvanized equipment, resulting in highly desirable economies. The resultant strength makes possible a saving in labor and material by requiring less hangers for the air ducts in air conditioning systems. This strength also makes possible the construction of larger equipment to allow for frequent and easier cleaning by permitting a man to enter the ducts. Fig. 8 shows types of joints for air conditioning ducts fabricated by this process.

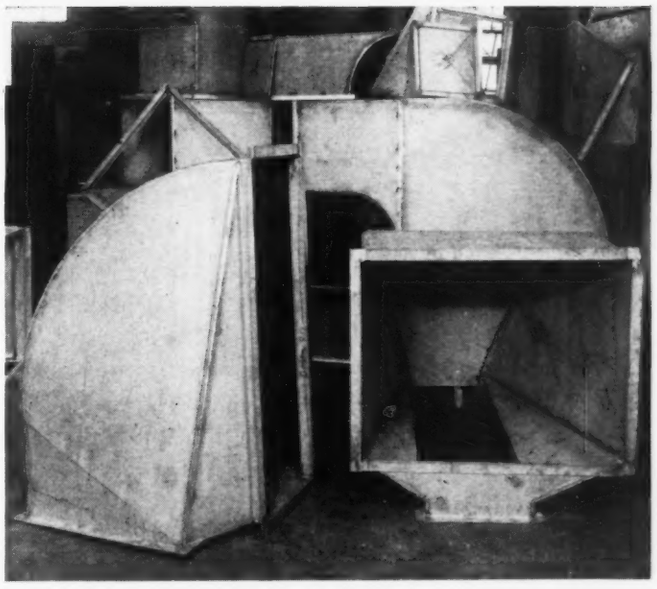


Fig. 8.—Various Parts for Air Conditioning Duct Work Fabricated from Galvanized Sheet.

This method was developed primarily for air conditioning equipment, but the scope of application does not stop here. Probably the next largest field is the fabrication of grain chutes where galvanized metal, rust-resistant and free of contamination, has replaced the old type of wooden chute. It may be said that practically every large grain handler in the country is employing galvanized chutes or buckets for conveyors. Such conveyor systems could be used for other purposes besides grain. Rust-resistant laboratory equipment offers another large field. With very little imagination, one can envision widespread usage of this process in connection with metal cornice work, gutters, dust collectors, and many more applications.

Glass Masking Coat For Spray Painting

SPRAY painting is the quickest way of doing painting, but the task of removing paint or of making and mounting suitable masks to protect glass has frequently been a deterrent. These disadvantages can readily be eliminated by using the following glycerine-containing glass masking coating:

Kaolin	2.0 parts
Glycerine	1.5 parts
Water	4.5 parts
Butyl alcohol	0.25 parts

Mix the above ingredients thoroughly. Apply to the glass with a brush and allow to dry. After painting with a spray gun, and allowing the paint to dry, the mask may be removed with a putty knife, a cloth or by washing with water, leaving the glass free of any paint.

This masking mixture can also be used to protect metal and similar surfaces during spray or brush painting.

Fabricating War Products

[Combination Cabinet and Work Bench, Part 2]

In the May issue Mr. Zideck described the construction and planning; the general assembly; and gave dimensions of parts of this cabinet and bench. This issue shows the layout of each part in detail; shows templates for checking and fixtures for joining; and explains how fabrication should be routed through the shop. This is an actual "war product" and would likely be manufactured about as explained. Readers not thoroughly familiar with product fabrication should, therefore, find these two articles valuable and timely.

By Ernest E. Zideck
Sheet Metal Consulting Engineer

IN PLANNING production of the Combination Cabinet and Bench we first determine which of the pre-assemblies can be completed and made ready for final assembly without clogging all the available shop space, as would happen if we were to start production with drawer containers and drawers.

There are three sub-assemblies which may be completely finished, in several hundreds at a time and stored by piling the product one on top of the other for future use. The most pressing of these is the Bench Top, which must be made ready for final assembly all welded and abrasively finished and provided with recessed bolt holes, its insides coated with ¼" of the sound-absorbing material.

The Bench Top is constructed of three pieces, the first piece providing the top and the two sides to it and the two other pieces, reciprocating, providing the ends to the top. Layouts Number 1, and 2, facing, refer to the bench top and give the sizes of the blanks; also directions for the processing the blanks through the shears, the punch press and the forming brakes. Further processing is contained on the Processing Sheets furnished the respective supervisors.

In making the layouts for production, the layout man cooperates with the process man and both cooperate with the sample maker. In other words, a sample of the bench top is made up by the layout man with directions, and the operations and the completed sample are checked for verification of the correctness of both. Corrections in the layout and in directions are made, if necessary, before the layout is converted into a pattern and directions are stenciled on it, for use by the machine operators.

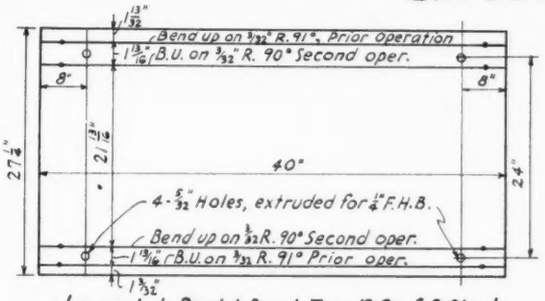
This procedure is followed in the making of patterns for the Base, Layouts 3 and 4; Layouts 5 and 6, for the top receiving frame; and all the other components in succession.

Patterns are made for each part, large and small, for three reasons: (a), the pattern room uses one standard scale or ruler on each part, so that dimensions in the patterns are uniformly the same; (b), the use of patterns for setting gages on the shears, the cutters, the provisioning machines and the forming machines eliminates the handling, soiling and misreading of blue prints at the machines and mistakes being made in measuring distances by a variety of individual scales or rulers; and, (c), the use of carefully prepared and repeatedly checked patterns in setting gages on the machines and in the inspection of the operations makes for quick, dependable results.

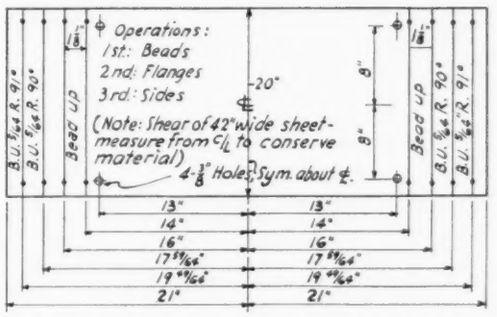
Other parts which may be prepared in advance and stored, in quantity, without taking up much room, are the reinforcing angles and the lock-holding channel, Layouts 7, 8, 9 and 9-A, respectively. The process engineer cooperates in this respect with the man in charge of production and releases to him such items, in their order, as will keep the machines and the men busy, at the same time guarding against the output clogging anyone of the machines or being piled up awaiting operations, interfering with the men's work. It is the process engineer's job to figure all these eventualities in advance, planning each item released for production with a view to its passing from operation to operation and reaching its temporary storing space, available for use in assemblies, without causing congestion of materials at any machine, or interfering with the flow of new blanks being sheared, provisioned, formed and worked.

The Items shown in Layouts 10, 11, 12, 13, 14

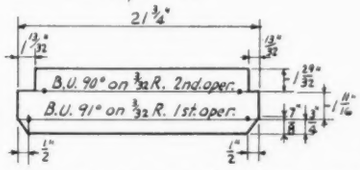
LAYOUT OF PARTS



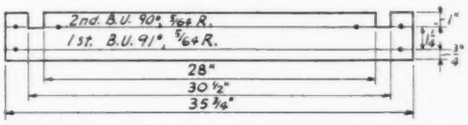
Layout-1-Part-1 Bench Top-12 Ga. C.R. Steel
(1-Required)



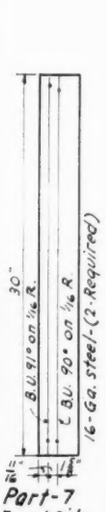
Layout 3-Part 3- Base- 14Ga. H.R. Steel
(1-Required)



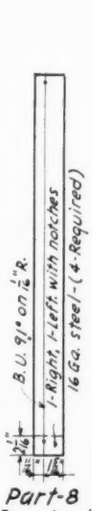
Layout 2-Part 2- Top Sides-12 Ga. C.R. Steel
(1-Right, 1-Left Required)



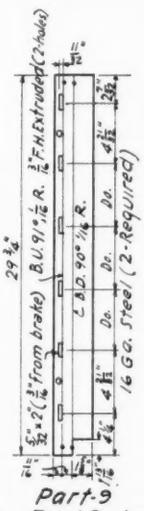
Layout 4-Part 4 - 14 Ga. Steel
(2-Required)



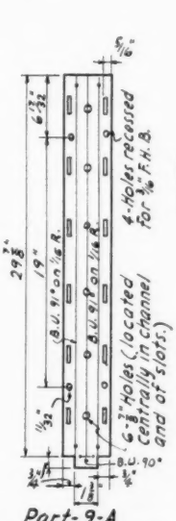
Part-7
Front Side
Angle



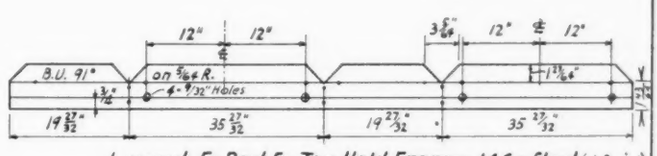
Part-8
Rear Angle



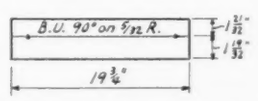
Part-9
Front Center
Angle



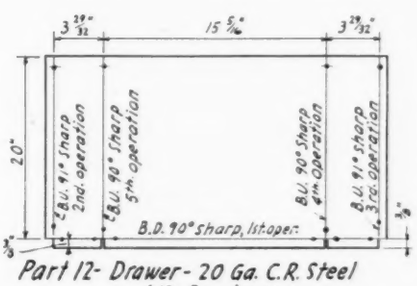
Part-9-A
Lock Hold Channel
16 Ga. C.R. Steel (1-Req'd.)



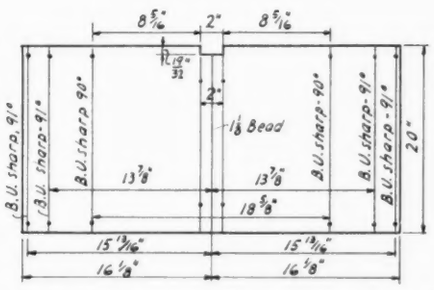
Layout 5-Part 5 -Top Hold Frame - 14 Ga. Steel (1-Req'd)



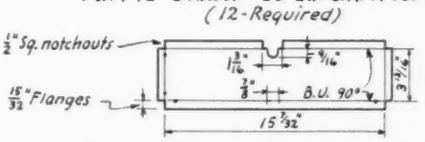
Layout 6-Part 6-Cross Angle
19 Ga. H.R. Steel (2-Req'd.)



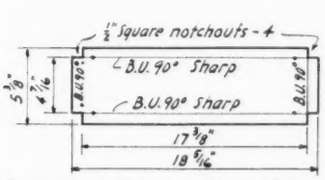
Part 12- Drawer- 20 Ga. C.R. Steel
(12-Required)



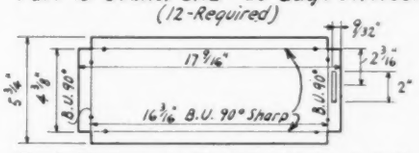
Layout 10-Part 10- Container 18 Ga. Steel
(12-Required)



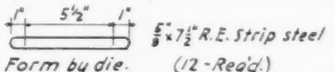
Part-13-Drawer End - 20 Gage C.R. Steel
(12-Required)



Layout 11- Part 11- Container End
18 Ga. C.R. Steel (12-Required)

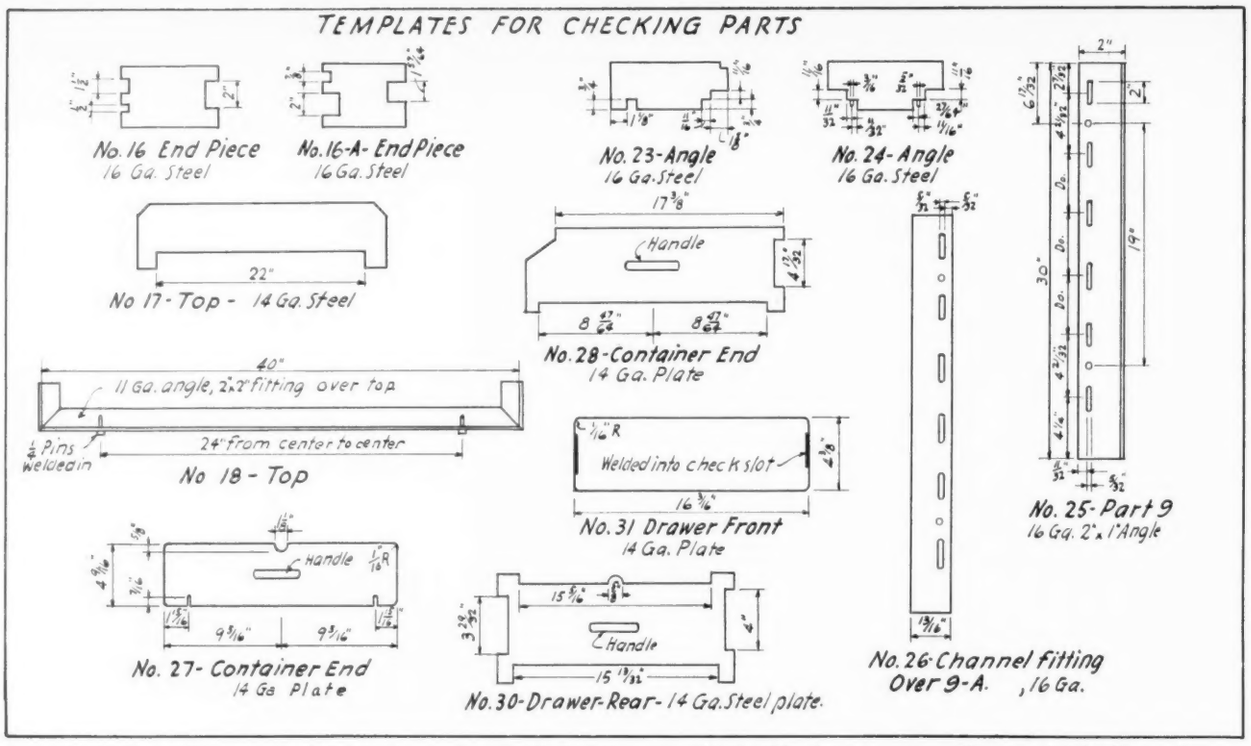


Part-14-Drawer Front - 16 Ga. C.R. Steel
(12-Required - 6 Right, 6 Left.)



Form by die. (12-Req'd.)
Part 15-Handle

Correction—Layout 6—Part 6 should be 14 gauge.

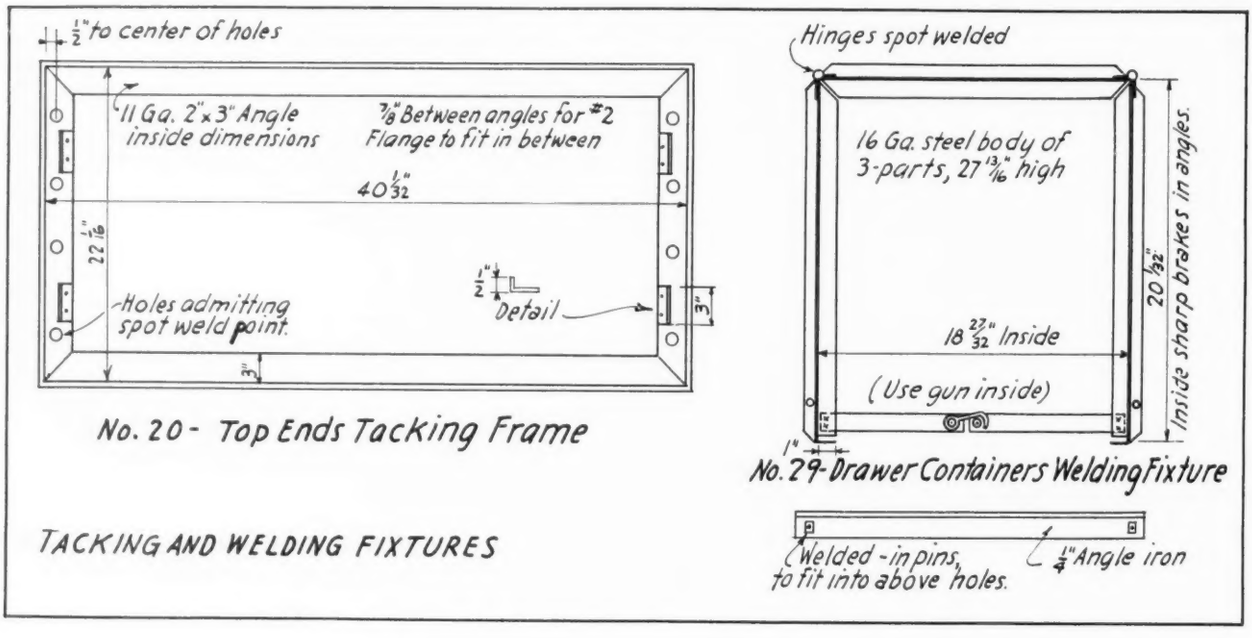


Correction—No. 31 checking tool has two welded-in lugs provided with slots corresponding to slot in Part 14.

and 15, Drawer Containers and Drawers, are released for production in accordance with the above planning. The bottoms or ends—11, 13 and 14, may be all finished and stored in bins, as may also the Item 15, the handle, or this may be spotwelded to 14, in all respects ready for assembly and stored.

Items 10 and 12, the Container and the Drawer bodies, will be sheared and provisioned-in-flat, but their forming will await the completion for assembly of all the other parts. Meanwhile, several of the cabinet assembly fixtures should be built, checked and corrected, to be ready in the gun-welding together of the structure. The container bodies are processed through the brakes first, with the spotwelder busy inserting the ends to them, and the cabinets are built in the fixtures as quickly as the containers are formed and ready, with the other welding crew welding together the two series, connecting them to the base and the top-holding frame, forwarding the structures for final welding.

While this activity goes on the other brake crew is forming the drawer bodies, Item 12, with the other spotwelder connecting the ends to them, and the output is forwarded to the finishers and from them to final assembly, where meanwhile have arrived several of the finished cabinet-structures, to be provided with the Bench Top, with the Lock Bearing Channel, and with the Drawers, and inspected and forwarded to the shipping room. And while the first batch of the product is thus



being processed, the shears, the provisioning machines and the other equipment and crews are kept busy on another batch of the tops, the bases, the frames, the other component parts.

Frequently the products used by the army are specified to be painted with a coat of olive drab, self-drying; and if so, the Bench Top is so processed prior to its bolting to the cabinet, while the cabinet and the drawers are sprayed separately, so that the paint covers the interior metal as well as its exterior surfaces. If no painting at the origin is specified, the structures must be sprayed with rust-preventive liquid prior to their leaving the shop or storage for final inspection or crating.

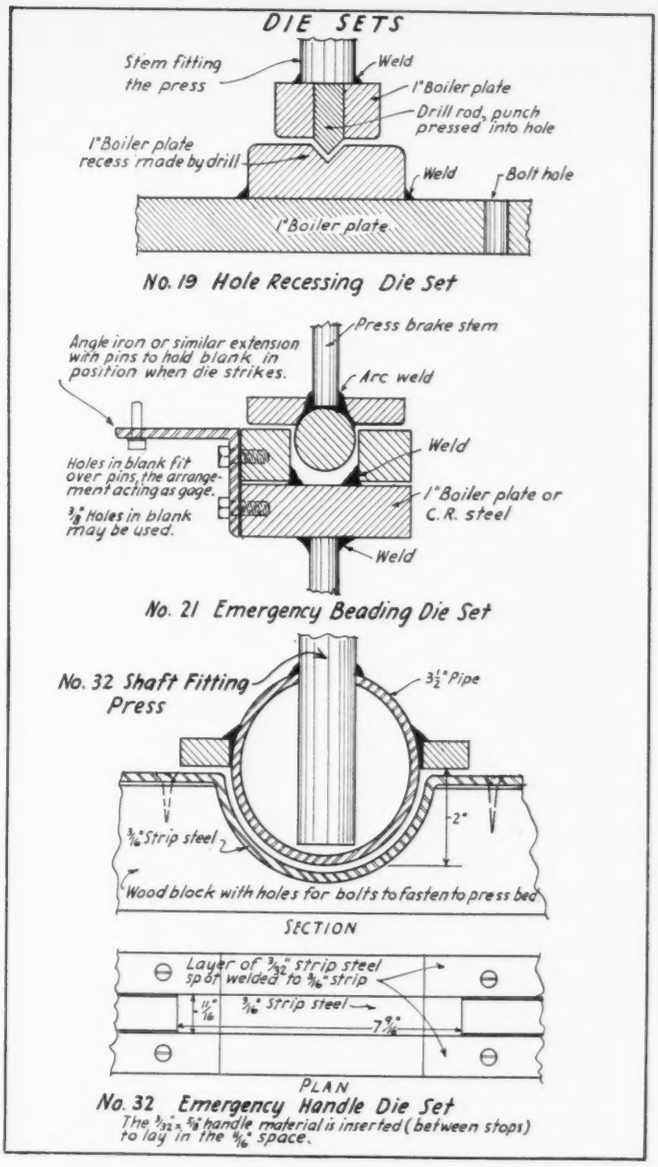
Tools, Fixtures, Jigs and Aids

The bench top, Layouts 1 and 2, is manufactured according to directions stenciled on the patterns, the formative operations checked as to their correctness by Template 16, made by the pattern maker. As there are no notchouts, and to provide work for the punch presses, it is best to figure on the four bolt holes in the top and their recessing, being done in the punch press—the more so because the brakes on which the punching-recessing could be done, can be busy with the formative work.

The holes being uniformly placed from the ends of the blank, one gage set-up will do for all the holes, the operator turning the blank about, the four individual hole punchings being accomplished in about one minute's time. Same applies to the recessing of the holes, on another press possibly, so that the flow of the blanks from shears to presses and on to the brakes would be a continuous one. Two brakes would be better than one, the first brake doing the ½" and the 1½" flanges using two gage set-ups and two operators, at one stroke; and the other brake, one gage set-up but two operators, doing two blanks at one stroke, two strokes completing two tops. The end pieces, blanked by the shears and notched, might be formed in another brake, a box brake possibly, two men handling one piece each, and making two flanges at one brake movement.

Template 16-A is used for checking the end-piece, Layout 2, as to its specified formation. Template 17 will check the width of the top, Layout 1, while Template 18 will be used for checking the location of the holes in the vertical portions of the top. Hole punching is accomplished by standard means, location gages constructed in the usual shop manner. The recessing punch-set is sketched in Detail 19. An 11 gage steel angle frame, Detail 20, serves for "tacking" the ends to the top.

The "tacking" is done by two men handling the top in the frame, each holding one end in its position in the frame, and spotwelding through the openings provided in the fixture. The top is then received by the arc welder, he welding the end-joint and the flange corners solidly, filling-in where necessary, so that the abrasive finisher may finish the bench top without a trace of the joints and the welding remaining. The finished bench



top will come out warped, at times, and must be made straight and level by the benchworkers before being forwarded to where the sound-absorbing layer and eventual paint is applied to it.

In the fabrication of the Base, Layout 3 and 4, the notchouts are done by standard tools, as are the four 3/8" holes, but the "beads" in the bottom require a special die-set for the press brake, the set indicated in Detail 21. A spotwelding assembly fixture similar to Detail 20 may be used, but is not necessary if the men doing the spotwelding are careful in fastening the sides (Layout 4) flush with the edge of the metal (Layout 3)

A welding fixture similar to Detail 20, just a plain frame, is used for the Top Holding Frame, Layouts 5 and 6. The fixture holds the frame in square position while the two cross-members (Layout 6) are welded solidly to the metal of the frame. The holes punched in the frame are accomplished by standard means. Ready-made nut retainers may be procured for holding the nuts in position, the retainers spotwelded to the frame after its other completion. The arcwelding done on the frame corners must be finished off, so that the welds do not interfere with the fit of the

Parts Cost Estimating Sheet

(Multigraphed Forms, filled out by hand, as called for)

Drawing No. A-43-10
Specif. attached

Part No. 10
Based on: 1200

Material

1.	400 sheets, 24 x 96, 18 ga. 1 P. Cold Rolled Steel	$512.00
2.		
3.		

Deductions

1.	400 pieces, 4 x 24, usable for Part 13	$ 32.00
2.		
3.		

Material Net: $480.00

Processing

1.	issuing, handling, inspecting, wheeling sheets	$ 11.60
2.	obtaining, handling, returning dies, pattern, template	4.80
3.	gage set-ups, die set-ups (9), their inspection	17.00
4.	shearing 400 sheets lengthwise, 400 cuts, 2 men oper.	8.60
5.	second shearing lengthwise, 400 sheets, 400 cuts, 2 men	9.20
6.	shearing blanks, 1200, 1600 cuts, 2 men operating	18.60
7.	continuous inspection of the above 3 operations	6.00
8.	punching 2 holes for hold on Die-Set No. 21, 1 operator	7.00
9.	notching out for beads, 1200 notch-outs, 1 operator	6.50
10.	inserting beads, 1200, 1 operator	8.40
11.	first braking, 2400 flanges, 3 men oper. simultaneously	16.00
12.	second braking, 2400, 3 men operating simultaneously	18.00
13.	third braking, 2400, 3 men operating simultaneously	20.00
14.	continuous inspection of the above 6 operations	8.60
15.	final inspection, adjustments, acceptance of parts	12.00

Processing Total: $172.30

NOTE: estimate based on the handling of sheets and blanks and processed parts from Shop Truck to Shop Truck, operators wheeling Trucks as wanted by them.

NOTE: estimate based on the Emergency Die-Set 21, which adds the operation 8, punching of hold-holes for pins in the die-gage.

Processing Sheet

(Multigraphed Forms, filled out by hand, as needed)

Prod. Order No. 166
Unit No. A-43
Name: Cabinet-Bench

Lot No. 1
Part No. 10
Name: Container

frame in-between the flanges of the bench top. In other respects the frame, hidden from view by the bench top, need not be finished as elaborately as the bench top is specified to be.

The reinforcing angles, Layouts 7 and 8, are checked by the combination Template, 23. Slots in Layout 8 are best done by a "strippit" arrangement, which can be used for making the slots in the channel, Layout 9, also punching the lock-receiving and the bolting holes in the channel, the tool operating in the press brake. But should it become impossible to procure the right performing tool, individualized punching in the press can be resorted to, the slotting die-set also doing the slots in the Drawer Fronts, Layout 14, and the angle, Layout 8. A recessing die-set for $\frac{3}{16}$" bolt heads is used on the angle and the channel holes, similar to the tool shown in Detail 19. Checking Templates, 25 and 26, are used on the channel formation and the location of slots and holes.

In the construction of the drawer containers (Layouts 10 and 11) the combination Template 27, checks the width and the height of the container, the depth having been inspected when shearing the blanks. The Template 28 is used checking the width and the height of the container ends, Layout 11. In the assembly of the containers for spotwelding, the fixture depicted in Detail 29 is used. Six of the containers, arranged one on top of the other, are placed into the fixture 29, the top is clamped over them, and then the spotwelding is done on the series, the fixture insuring equal lineup and height of the assembled containers. Notchout for bead in the body, as shown in Layout 10, is done by standard means. The bead is done by the special die-set sketched in Detail 21. The hole, as shown in Layout 11, is punched round and then notched out. Extrusion of the metal in this part is done by standard means. The container is formed to shape with the bead inserted first, the flanges braked next, and the body sides last, as the Pattern specifies.

The reinforcing angles, Layouts 7 and 8, and the double angles, Layout 9, are gunwelded to the sides of the container series, flush with the top container, the 2" overlap reaching over the container bottom to be welded to the base in assembly. Gunwelding is employed for fastening the base and the top holding frame to the container series; and arc welding is done on the angles at the base, as also, in spots, at the juncture of the exposed angle flanges and container joints. In the rear of the structure the two central angles are arc welded in spots 6" apart; same fastening is done at the juncture of base and the lowest container. With this final welding done, the assembly is forwarded to the abrasive finishers.

For the formation of the Drawers, the rear and, the front end, and the handle, Templates 30 and 31 are used: and in Detail 32 is sketched a forming die-set for the handles, constructed of a piece

Parts Processing Sheet

No. 16

Material: 18 ga. 1 P. Cold Rolled Steel
Pieces Per Sheet: 3
Number of Sheets: 400
Remnants: 1½ x 96; 4 x 24; 400 each

Sheet Size 24 x 96
Pieces Required: 1200
Stock Order No. A-431-10
Disposal: use in Part 13

Processing

1. obtain Stock and inspect sheets being loaded on Shop Trucks
2. wheel inspected sheets, in 25 lots, to Shear No. 1
3. handle sheets from Truck, shearing ½" off the width of sheets
4. load sheared sheets on another truck in handling
5. obtain Pattern No. 10, A-43, and set gage on shear 2 for blank width
6. wheel sheared sheets from Shear 1 to Shear 2, shear sheets to width
7. inspect shearing continually, checking to pattern size
8. set gage on Shear 3 to Pattern length, try, adjust to pattern
9. wheel sheets from Shear 2 to Shear 3, square, shear 3 blanks
10. set notching die and gage, by Pattern, on Punch Press No. 1, inspect
11. wheel blanks from Shear 3 to Punch Press 1, notch and inspect
12. set die and gage on Punch Press 2, for 2 holes per pattern, inspect
13. operate punching holes in blanks coming from Punch Press 1, inspect
14. obtain Die-Set No. 21, install in Press Brake 1, try, inspect by Temp. 27
15. wheel blanks from Punch Press 2 to Brake 1, insert beads, inspect.
16. set gage on Press Brake 2 for 1st braking operation per pattern, inspect
17. wheel blanks from Brake 1, to Brake 2, 3 men operating at 1 stroke
18. set gage on Brake 3 for second braking per pattern, try, inspect by 27
19. operate, 3 men handling the blanks, 3 blanks at a stroke, inspect
20. change set-up on Brake 2 for 3rd braking per pattern, inspect by 27
21. operate by 3 men handling 3 blanks at a stroke, inspect repeatedly
22. wheel blanks from brake, finishing 3rd braking, to Spotwelder 1
23. in so doing inspect together with Supervisor, Section 2
24. deliver to origin Dies, Pattern, templates
25. deliver to Stock Room sheet remnants, clear the machines
26. execute this sheet and deliver to Production Office

Issued: 8 A. M., 1/12.—42 (Signed)

Material issued per above Order: (signed).....Stockkeeper .....
Operations started: 2 P. M., 1/12.—42
Operations completed: 6 P. M., 1/13.—42
Parts inspected and received by: O. K. (Signed).....
Computed Man-Hours: 140

Supervisor, Section 1 (Signed).....

of 3½" diameter pipe and a wood block, as illustrated. The die-sets shown here are emergency tools, constructed locally by the men in the shop, but these tools may be used to advantage for this particular job and will last indefinitely. Obviously in their construction a toolmaker's more precise work must prevail, because the tool will be responsible for the formation of many thousands of parts.

The above Layouts, Templates, Tools and Aids have been prepared for this particular job: the Combination Cabinet and Work Bench for Military Trucks. But the same principles of planning disclosed here; the same procedure in layouts will be applicable to any other job of similar nature, with the fixture and die-set constructions imitated in any purely formative work. True, we can not, without machine shop facilities, make cutting, piercing, punching, slotting and similar tools; but we can construct, inexpensively, well-working formative aids in our own shop and with facilities we have.

Air Conditioning Equipment Fire Standards Amended

AMENDMENTS to standards for the installation of air conditioning equipment were adopted at its recent meeting by the National Fire Protection Association.

1. Specifications for the thickness of metal for air ducts were enlarged to include approved types of joint connections and bracing.

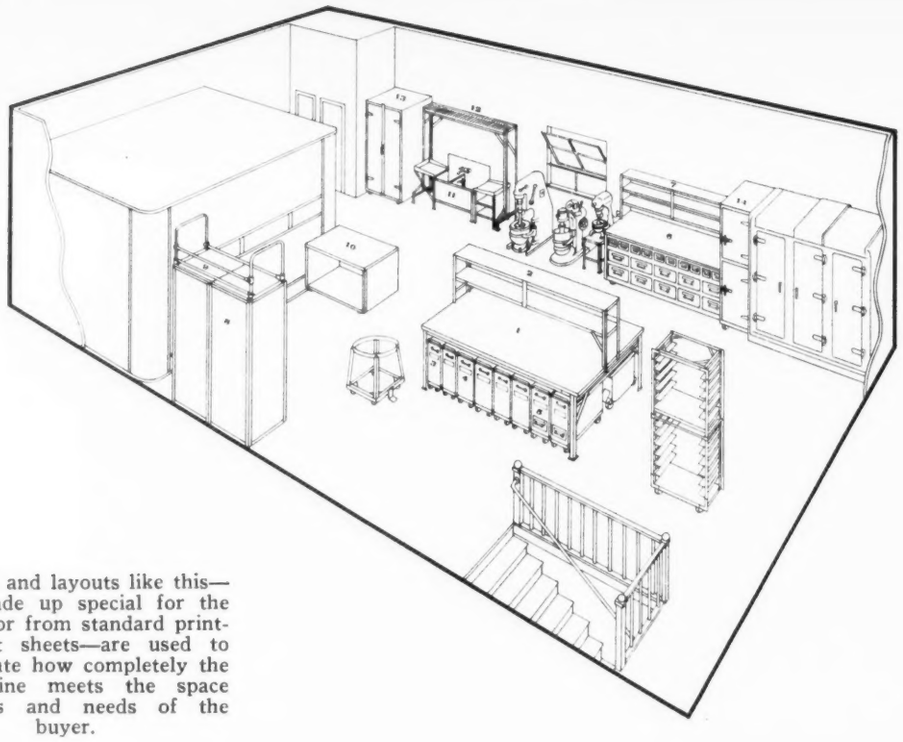
2. A measure of safety in the rating of fusible links for automatic fire doors and dampers was adopted by setting the rating at fifty per cent higher than the maximum temperatures to be encountered in any air conditioning system.

3. An exception was granted to the rule requiring smoke dampers in the main supply and main return ducts of systems of more than 15,000 cubic feet per minute capacity when the system is located on the same floor it serves.

4. Formerly, all electric lamps enclosed in an air conditioning system were required to be of the marine or vaportight type, but a new amendment makes it possible to use germicidal lamps having no filament and of low exposed surface temperatures.

5. The use of No. 18 U. S. Gauge metal for louvered type dampers were specified, providing each louver is not more than six inches wide and is stiffened by formed edges.

Other amendments concern temperature protection devices for enclosed motors, the adjustment of photoelectric smoke detectors in air ducts, and dampers for supply ducts of high temperature heating systems. In several instances, the wording of sections of the standards was changed slightly in the interest of precision.



Drawings and layouts like this—either made up special for the prospect or from standard printed layout sheets—are used to demonstrate how completely the Wilder line meets the space limitations and needs of the buyer.

Wilder Mfg. Co., Brooklyn, Specializes In Items for Bakers and Suit Mfrs.

By R. C. Nason

WILDER MFG. CO., Brooklyn, N. Y., is a good example of the virtue of specialized knowledge and focused fabrication for a few industries versus the more common business method of catering to all-inclusive consumer demand.

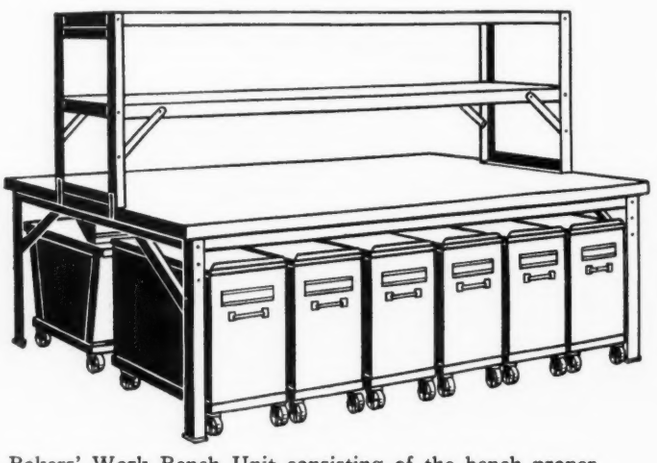
Arthur F. Derse, proprietor of the sheet metal contracting and manufacturing business, now rounding out its twenty-first year, proves the diversity of concentrated sales efforts by pointing out the Wilder Company now furnishes more than 1,000 separate heavy gauge sheet steel items that make up their regular line.

The founder, Joseph Derse, established a general sheet metal contracting business shortly after coming from France. The son, Arthur F., having a leaning towards machine shops, became a tool and die maker plus general machinist. When the founder passed on, the present Wilder Mfg. Co. owner reentered the sheet metal business, but determined to specialize.

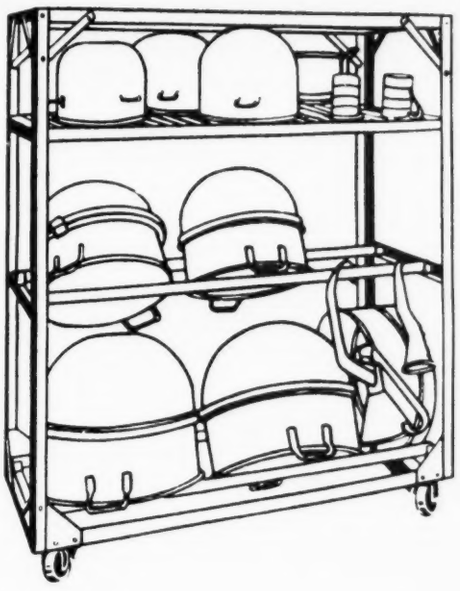
For the first few years thereafter Mr. Derse spent hours, days and weeks visiting bakeries and clothing manufacturing. He almost got to be a nuisance, but in the constant visits he learned the intricacies and needs of the two industries.

The outcome was the development of what is regarded as practically complete coverage in the specialized fields. So practical is the line now offered, in fact, that one large maker of men's clothing has discarded all wooden equipment such as tables, racks, benches, cabinets, etc., and substituted metal.

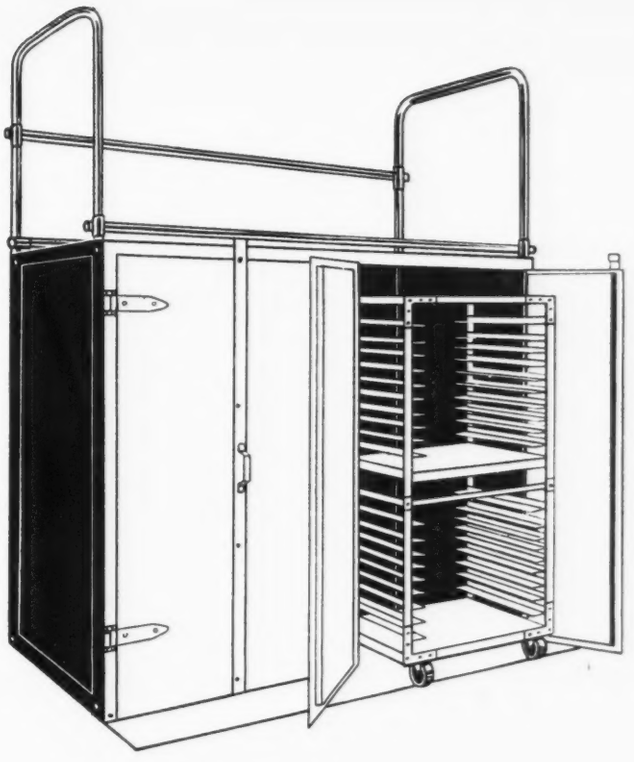
The sheet metal fabricator has now sold this manufacturer more than 1,200 tables of special design, the output of Mr. Derse's experience and thinking. His men have worked for the past three years almost continuously installing the Wilder metal equipment. Among benefits accruing to the purchaser is the elimination of manufacturing and storage losses due to rip and tear of raw cloth



Bakers' Work Bench Unit consisting of the bench proper, a double shelf unit and 12 utility bins on casters. Note usual placing of this unit in layout above.



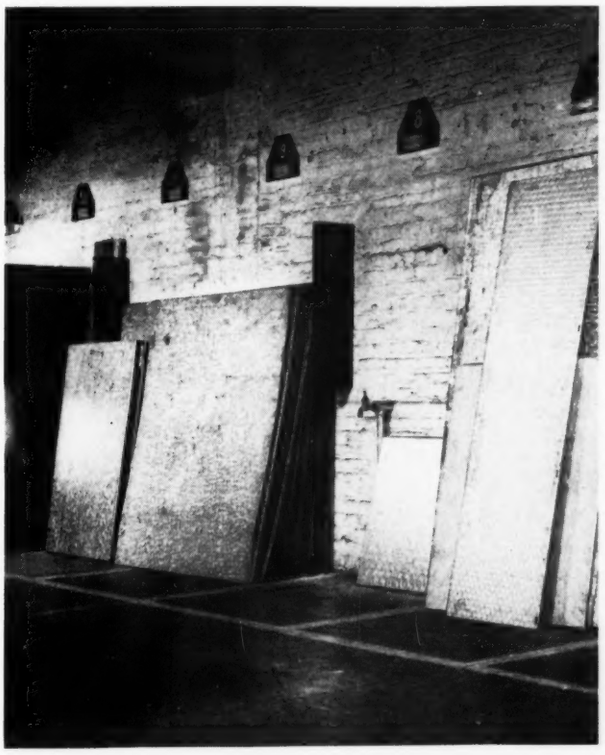
Left — Bowl and Utensil Rack is one of the very popular bakery items. It permits storage and drying of difficult sized and shaped bakery utensils.



Right — The Proof Box with roll box racks is another popular Wilder item. It serves a special purpose of keeping bakery goods clean, out of the way and air tight.

and finished garments. Formerly, when this customer used wooden tables, benches, racks and cabinets damage loss ran into the thousands of dollars yearly.

Keen to new business opportunities Mr. Derse contacted bakers and bakery owners, also previously large users of wooden equipment. His idea was the substitution of metal equipment. Besides offering to make everything of metal, the sheet metal man volunteered numerous improvements that shortened bakers' work and produced better cookery. Twenty-gauge galvanized steel proofing, or "steaming," boxes are an example. They used to be made of wood, which warped and wore out too rapidly for profits. Now Wilder Mfg. Co. makes them of steel, trebling their life, saving proprietors money.



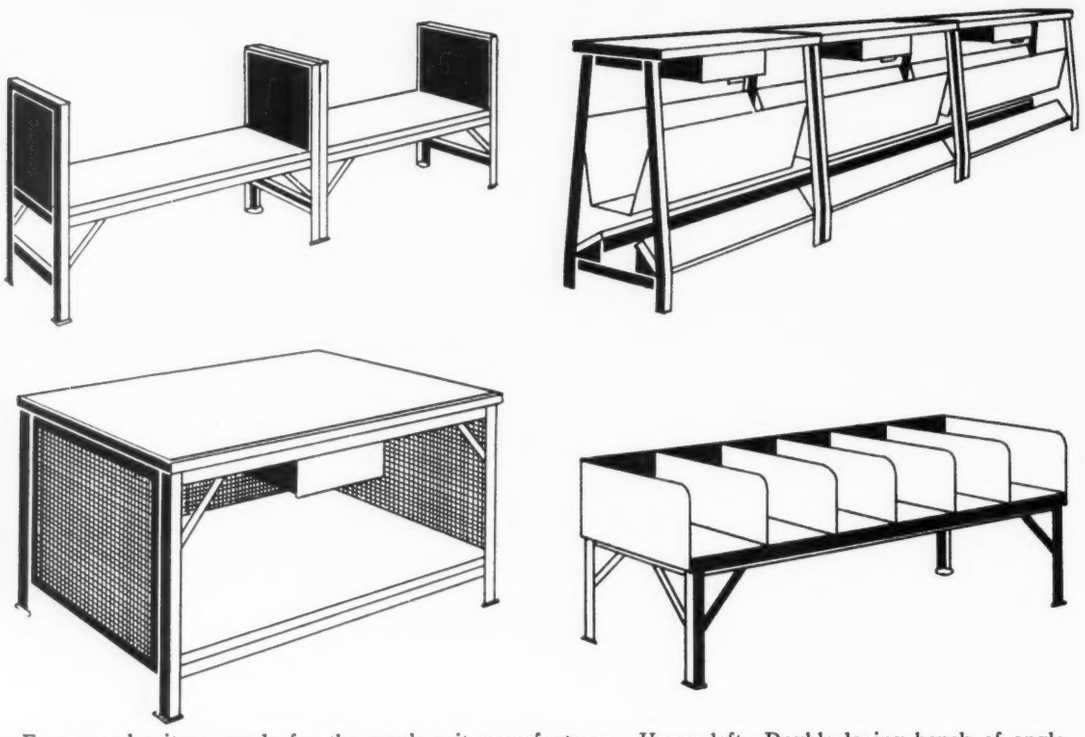
Derse's passion for neatness and orderliness (on which he sells his products to buyers) is also applied in his own shop. These marked-off squares "fence" all items in an order together until shipment.

Then there's the ingenious item listed as "work bench unit." This is an 18-gauge steel bench with a double shelf and, beneath, a dozen or so utility bins, all on casters. Made of heavy gauge steel, the equipment practically lasts a generation.

Or, again, examine the Wilder "bowl and utensil rack." In former times utensils were hung on hooks, around the kitchens. But the Wilder rack was introduced so bakers and, in fact, hotel, restaurant, and hospital cooks may store the utensils on steel angle iron rails for drainage and dust elimination during disuse. The equipment, on casters, may be shoved into a closet, rolled into a corner or other place when unneeded.

These are only a few of the many items in this fabricator's line. Others are equally as ingenious and, important to the fabricator, salable on their merits. Mr. Derse has come to be known as "a man of ideas" and he is sought by owners who wish to change existing or establish new bake shops and clothing factories. "How can we solve this work problem?" Derse tells them.

This ability to fit equipment to need has resulted in changed selling methods by the Wilder Mfg. Co. The usual photograph album has been discarded for drawings and layouts, free service of the fabricator. When the company learns of clothing or baking establishments about to make changes, a representative of the contractor asks for the privilege of laying out the equipment. As evidence of fitness to do so, the representatives carry with them several typical layouts in isometric drawing. Few proprietors are not willing to receive the ideas. Then come complete plans



Four popular items made for the men's suit manufacturer. Upper left—Double laying bench of angle and sheet construction; Upper right—Three place finishing table with steel trough and tool drawers; Lower left—Work table of angle iron with Masonite top on a wood base and screen panels to confine bundled materials to the shelf; Lower right—Six Compartment assorting table of angle iron and light steel plate construction.

by Wilder Mfg. Co. showing size, type and placement of equipment. This sells the job in better than 80 per cent of cases, said Mr. Derse.

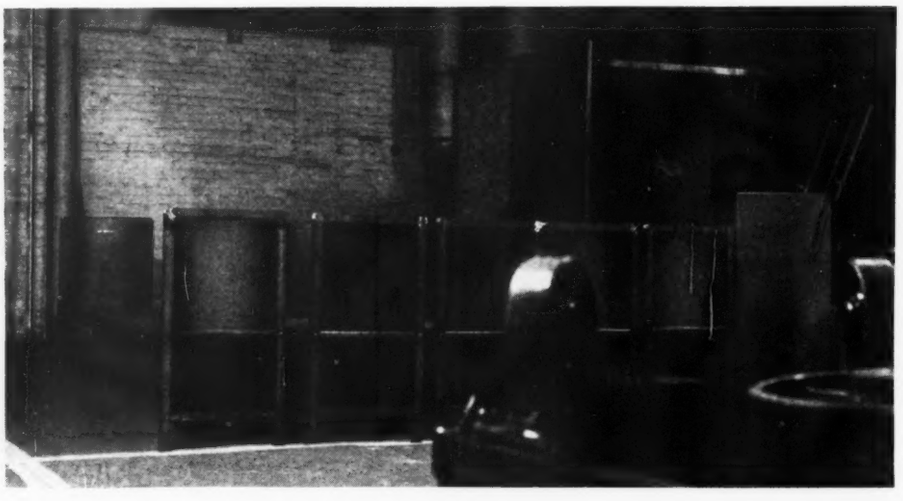
A factor in the success of this shop is the constant watch for better ways to do things. When Mr. Derse and his three sons visit industrial establishments, as they do practically every day, they watch to see how they can improve on methods. This suggests new equipment, the substitution of metal for wood, the design of new and improved models of tools and equipment. This has made the Wilder line grow enormously in the number of articles made. But it also sells the order. And when improvements over older designs of Wilder equipment are found the older designs are discarded—templates and pattern cost have no value here.

The owners of the Wilder business believe in starting housecleaning in their own shop—system here is both an art and a science. For instance the time clock registers in hours and tenths only. This permits rapid figuring of payrolls and shop costs; no laborious adding of odd minutes to be translated into hours.

Shop order routing is original here and practical as well. Every order is given a number. A marker is hung over a white-lined factory square averaging 5 ft. by 5 ft. All parts of an order are placed in their proper square as soon as made. When all parts are ready the article, say a bench, table or cabinet, are assembled on the floor nearby. No parts missing; stored out of the way until assembled. Some of the squares are larger, say 12 ft. by 12 ft., as required. This makes virtually a checkerboard of the factory floor, but to a purpose.

Shop tooling is ample. Practically all machinery has been bought as standard design then speeded up by improvements made by the mechanical expert, Mr. Derse. Job routing is stream-

(*Continued on page 81*)



Several "laying benches" of 18-gauge steel ready for spray booth. These benches practically eliminate all wear and tear formerly caused by use of wooden benches.

Air conditioning for war plants *IS NO BETTER THAN ITS DUCTS*

In this battle of machines many war plants (old and new) get contracts that demand precision work. Often tolerances must be less than 1/1000th of an inch! This means a temperature change of only 2° F. can throw delicate instruments out of line. Air conditioning is the answer.

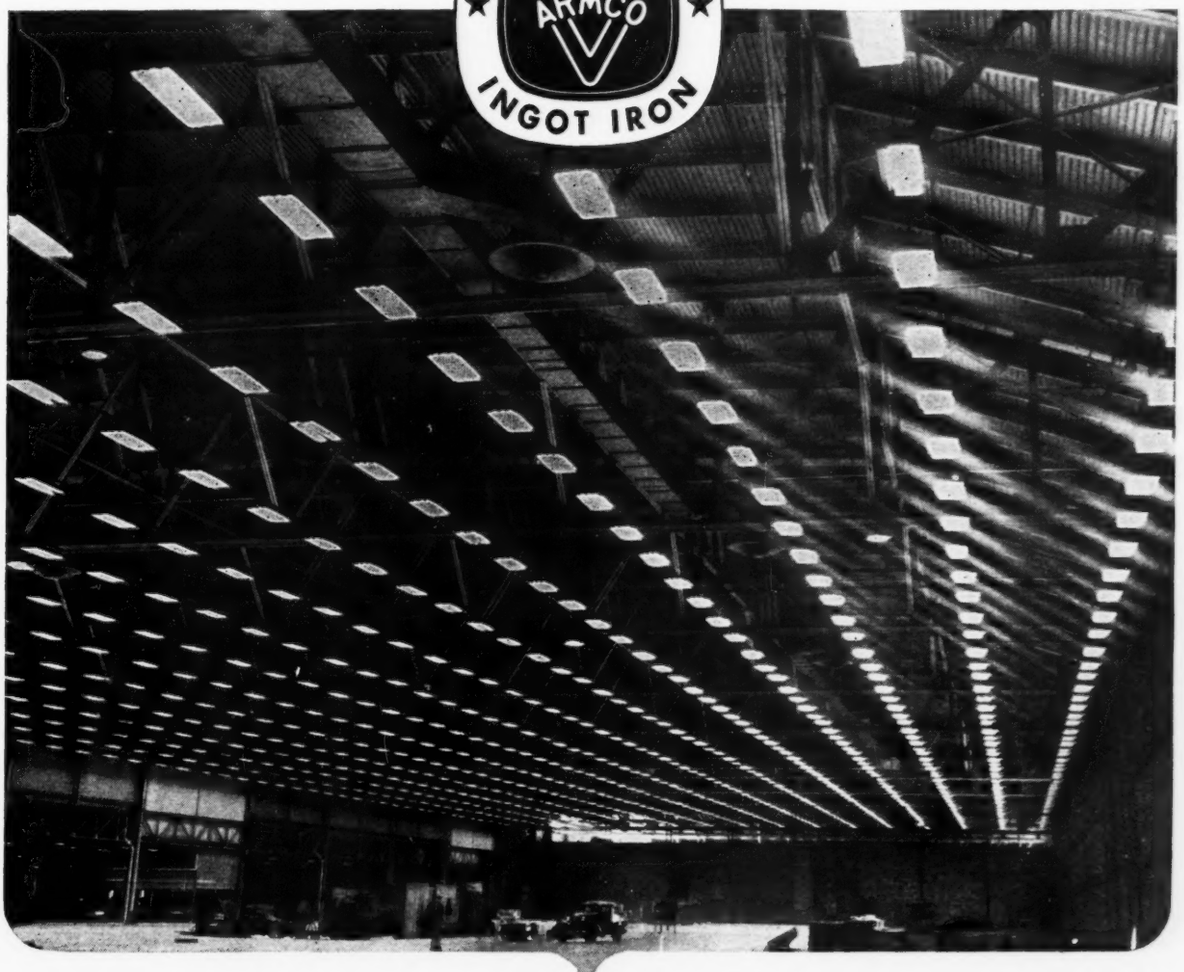
Ductwork systems in many of these war plants are constructed of galvanized ARMCO Ingot Iron. Engineers and contractors specify this durable metal because it has the longest actual service record (36 years) of any low-cost iron or steel sheets. Yet with all its durability ARMCO Ingot Iron costs on the average only about 1c a pound more than ordinary galvanized sheets.

The easy forming properties of galvanized ARMCO Ingot Iron help contractors to maintain abnormally fast construction schedules. And you'll find every sheet exactly alike in chemical analysis and uniform weight of coating.

If you are designing air conditioning systems for war plants write for data on galvanized ARMCO Ingot Iron.* We'll give you proof of its long life and low maintenance cost. The American Rolling Mill Co., 2081 Curtis Street, Middletown, O.

**For immediate painting and long paint life ask about galvanized* ARMCO PAINTGRIP.

MADE OF ARMCO INGOT IRON

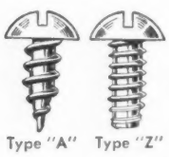


Speed up assembly of your Heavier jobs-

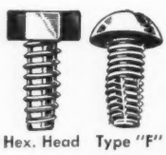
Parker-Kalon Self-tapping Screws are famous for *TIME* and *LABOR SAVINGS* on both light and heavy sheet metal assembly – from 28 gauge (.015″) up to 6 gauge (.203″) – steel plate, angle iron and other structural shapes up to ½″ thick!

No matter what gauge of metal you're working with these days – no matter what type of structural or fabricating jobs you're working on – Parker-Kalon Self-tapping Screws will help you make important TIME and LABOR savings. You gain time by eliminating tapping, and all tap problems. You gain time and save labor by cutting out the fumbling with bolts and nuts. And you eliminate riveting in hard-to-get-at places.

With Parker-Kalon Self-tapping Screws you actually get more secure, stronger fastenings. Because the unequalled "check-up" routine of Parker-Kalon's Quality-Control Laboratory protects you against "doubtful screws" – screws that *look* all right but some of which fail to *work* right. This is your guarantee that every P-K screw will drive easily and hold tight – a guarantee that helps protect your reputation for good work.



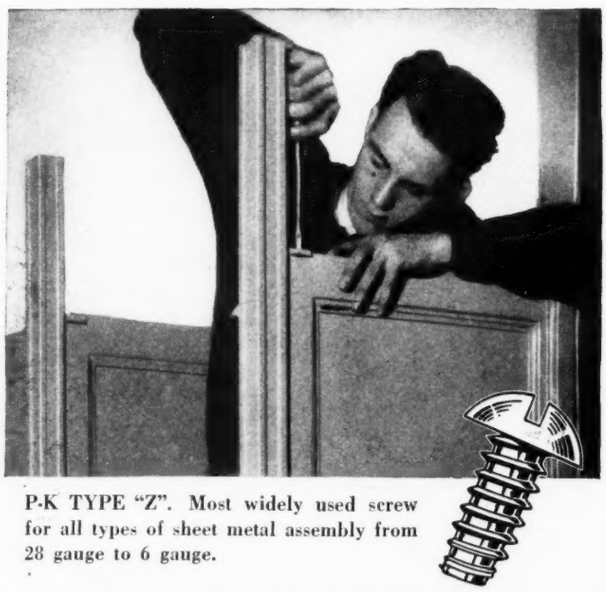
A SIZE AND TYPE OF P-K SCREW FOR EVERY SHEET METAL FASTENING JOB!



Begin right now to take advantage of the TIME and LABOR savings the *right type* of P-K Self-tapping Screw can make in your assembly work. Check up on the jobs you're handling. Maybe your work is similar to one of the jobs shown here. But whatever it is, there's a type of Parker-Kalon Self-tapping Screw that will help you secure important time savings. Just send in assembly details for recommendations and free sample screws. Parker-Kalon Corp., 190-192 Varick St., New York, N. Y.



P-K HEX HEAD. Turns easily into heavy sheet metal and structural steel shapes up ½″ thick.



P-K TYPE "Z". Most widely used screw for all types of sheet metal assembly from 28 gauge to 6 gauge.

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SELF-TAPPING SCREWS



Give the Green Light to War Assemblies

Stock Control Is Necessary Under Today's Price and Inventory Rules

By Arthur Roberts

IN CONNECTION with the author's accounting commitments and field studies among warm air heating dealers and sheet metal contractors, we find that less than 20 per cent utilize stock control with maximum efficiency, a defect hazardous enough before this emergency but doubly fatal today when costs must be kept under the most rigid control to assure a profit and when inventory is restricted under OPA rulings. It is more imperative than ever that the warm air dealer and sheet metal contractor keep a needle-point check on stock to minimize errors and loss and to make sure that inventory is handled in accordance with government regulations.

Stock control with warm air heating dealers and sheet metal contractors is a major problem for these reasons: (1) They use no system at all because they assume that stock control is costly and involved, (2) They use systems badly "tailored" to the business, (3) They use too elaborate a system, (4) The system is satisfactory but its operation is unsatisfactory.

Simple Stock Control

A simple, inexpensive system of stock control fitted to the business, is essential to profitable management and we offer the basic fundamentals in this article, the recommendations based on a study of many existing systems and stock-keeping methods where systems were below par. The dependable stock control system will comprise (a) The recording medium, loose-leaf or card (b) The control medium or forms, (c) The operating routine, from the purchase order to the sales slip or job ticket and inventory check.

Cards are the most practical and economical recording medium for the warm air heating contractor, filing cards, preferably 6 by 8, and 2 card files with lock, 1 file for "live" cards, (active), the other for "dead" cards, (inactive). Cards and files should cost less than $5.

The forms should contain only essential information. We have examined many stock control systems used by contractors and at least half of them are too elaborate, resulting in expensive upkeep or lax operation. In many cases, contractors who cannot afford extra help and are weighted down with an elaborate stock-keeping system, discard it or handle it half-heartedly. Keep form make-up as simple as possible. List only the data needed to check the movement of stock from the purchase order to the sale or installation. Big companies use printed forms. The small contractor can make up his own forms. We show here specimen stock control forms, which should be adjusted to fit your business, retaining the fundamentals. Never fit a business to a system. Always fit the system to the business. That, incidentally, is another reason why contractors have trouble with stock control forms. A small contractor will use forms adaptable to a big contractor's business or a big contractor will adopt a system better fitted to a department store, hence, it never works out right. The forms with this article give you the fundamentals of make-up. Use them "as is" or adjust them to your requirements but retain the fundamentals. They cover the operating routine necessary to adequate stock recording. Make recordings by hand. Write legibly. Illegible handwriting brings many stock control systems to grief.

Control Useless Unless Maintained

The third essential is operating routine. Those who start a stock control system should take inventory and enter each item's inventory on its card. File cards alphabetically. Recordings on a stock control card must disclose facts quickly. Most systems require excessive calculation to get the answer. Quite obviously this is a costly procedure and a headache to a contractor short on clerical help today. Operation is slow if a file is cluttered with inactive cards. When an item has been discontinued or a card is filled, transfer it to a "dead file." Never destroy cards because they are valuable statistically. Where does the data come from that goes on the stock control card? From the purchase orders, sales slips, materials requisition slips or job tickets—any original record that covers the receipt or disbursement of goods.

The data may be transferred from the original records to cards daily or weekly, preferably daily. If done accurately, the balance on each card will show the number of each item in stock. But no stock control system was ever that accurate. For that reason, check the card balances periodically against a physical inventory. Adjust the card balances to physical inventory.

Many contractors have asked us, "If I've got to take a physical inventory anyhow, what's the use of keeping stock control cards?" This query shows the general misunderstanding anent stock control. A stock control system, although it controls inventory, is NOT a perpetual inventory system, as many contractors assume. A perpetual inventory or physical inventory gives the total VALUE of stock in DOLLARS at a specified

Form No. 1

PURCHASE ORDER

Order No. .....
Date .....

Messrs .....
(Name and address of supplier)

When ship | Ship by | Terms | Salesman

.....

.....

Quantity	Item	Description	Price

Signed .....

Form No. 2

MERCHANDISE RECEIVED

Date received ..... Received by .....
Received from .....

Quantity	Size	Item	Condition

Form No. 3

MATERIALS REQUISITION

No. .....
Job No. .....
Customer .....
Address .....
Type Installation .....
The following materials requisitioned from stock:
Signed ..... Date ..... Hour .....
Foreman or mechanic
The following materials returned to stock:
Signed ..... Date ..... Hour .....
Stock-keeper

THESE 4 forms embrace the basic operating routine of stock control. The Purchase Order may be a letter or a supplier's order blank. Receipt of goods may be verified right on the purchase order. On Form 2 the receiving clerk should initial each item or initial the entire bill. All materials taken out of stock should be recorded on some form like Form 3. Form 4 is a stock control card, filed alphabetically according to items. Minimum and maximum mean minimum and maximum stock should be carried. Record only units; omit dollar value. Enter sales from Sales Orders, Contracts, Material Requisition slips—daily or weekly. Record all squares the same way. Start with inventory and purchases and deduct monthly sales to get starting stock for next month. Total "sales" and "purchases" at end of year. Total stock for year is meaningless, but "average" stock is important so enter it at end of the "stock" line under "Total".

Form No. 4

Item | Size | Color | Number | From

How packed | Min. | Max. | Description

Monthly Record of Sales

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1941													
1942													
1943													

Monthly Record of Stock on Hand and Purchases

Stock													1941
Rec'd													
Stock													1942
Rec'd													
Stock													1943
Rec'd													

time. A stock control system denotes the SALES MOVEMENT of each item in units primarily, although dollars may also be shown. It acts as a control on the withdrawal of stock for sales or on jobs.

We know contractors who have saved hundreds of dollars in fittings alone after installing a stock control system. Today, with materials higher and workmen more scarce, hence, inclined to laxity, the danger of spoiled or damaged materials or materials left on jobs is greater than ever before, making stock control all the more valuable. To compile inventory from stock control cards, it would be necessary first to take the unit balances on each card, multiply by the cost per unit and add up the totals on all cards.

18 Advantages of Good Control

In a nutshell, stock control provides these advantages:

1—Minimizes lost sales and time lost on jobs because of "outs."
2—Enables the contractor to determine quickly whether he is keeping within OPA requirements on inventory, thus, minimizing the danger of penalties through carelessness.
3—Detects theft, laxity and errors of employes.
4—Checks up on materials left on jobs.
5—Indicates the turnover per item.
6—Spotlights slow movers before they become shopworn or obsolete so that they can be disposed of at minimum loss.
7—Prevents long stocks and short stocks.
8—Shows how to balance purchases within the limits prescribed by OPA on inventory.
9—Indicates which items need re-ordering.
10—Holds the capital invested in stock to reasonable limits.
11—Switches capital investment from fast to slow sellers.
12—Shows average monthly movement per item and total stock.
13—Prevents over-buying and under-buying.
14—Decreases overhead by increasing item turnover.
15—Shows monthly record of purchases and sales.
16—Gives record of costs and selling prices with all changes, a price history of each item. This detail may be kept on the back of each card.
17—Provides dependable data for statistical analysis to determine future operations on other than a guesswork basis.
18—Keep margins at maximum.

Duplicates of stock control cards may be placed upon storage bins or stock shelves to keep maximum and minimum quantity requirements in sharp eye focus. As stock is withdrawn, the clerk deducts the number of units. As stock is replaced, he adds the replacement figures to the total on hand. The balance on bin cards should be checked weekly or monthly with actual merchandise in the bins and any discrepancies noted and adjusted on the master cards in file. Out-of-stock items cause many lost sales and much lost time on jobs. Bin stock cards minimize "outs" and prevent excessive tie-up of capital in overstocks.

"Why, how and where did I lose the money?" is the perplexed plaint of many contractors when reviewing their profit and loss statements. In many cases, the riddle cannot be solved because the loss leaks are hidden and cannot be earmarked until the contractor installs a systematic method of recording purchases and stock movement. Unless stock control is used, it is necessary to depend upon physical inventory to determine profit or loss. A physical inventory is another form of stock control, but because it takes so much time, it is often allowed to slide, consequently, the contractor does not acquire valuable information on stock-turn, fast sellers, slow movers, loss of materials through damage or carelessness, and the like. The contractor who installs a stock control system can card essential information for analysis within a short time. You can't buy right or sell right or be sure that you are maintaining inventory requirements in accordance with OPA rulings without some form of stock control, and if you lack these requisites to efficient business management, you can't make maximum profits.

It is notable that contractors who use stock control have the best laid-out shops and showrooms, the stock clean and in place. Where contractors lack stock control, many shops and showrooms look like junk shops, tools, fittings and equipment scattered around helter-skelter. Contractors with such slap-happy establishments never show maximum profits and too often losses.

Correction On January Article

IN reporting the installation of heating systems in the Burlington, Iowa housing project on page 100 of the January, 1942 issue we said—"One man and a helper usually constituted the crew to erect the ducts in the four and six-family units. . . . One man and a helper set the furnaces. . ."

H. W. Schriefer, Business Representative, Local No. 91, Sheet Metal Workers' International Association says this is a misstatement and that—"we had no helpers working on this job, but had three union laborers whose duty it was to carry material to and from the job. We do not use any helpers in our jurisdiction; journeymen and apprentices do all the fabrication and erection."

A. L. Gaughan of Northwest Roofing & Cornice Co., the contractor says we should have said—"it required three journeymen on the four and six-family units and a helper whose duty was to carry materials to the crew; on the one story units two journeymen; in the shop five journeymen placed fittings together while six journeymen produced the ducts and fittings. The total crew was 17 journeymen and three helpers."

Association Activities

Pennsylvania

The Sheet Metal and Roofing Contractors' Association of Pennsylvania will meet in convention at Erie, Pennsylvaia, July 16 and 17, 1942.

M. F. Lieberman, Secretary.

◆

Philadelphia

The annual outing of the Roofing, Metal and Heating Engineers, Inc., Philadelphia, will be held at the Oak Terrace Country Club on June 25th with golf, tennis, swimming, baseball and indoor games. Dinner at 6:30 p. m., with floor show.

The Trade Association News for May illustrates and describes a "Monthly Sales Summary" made up from Job Record Sheets of the jobs finished during one month, and gives a bird's-eye view for the busy man every month and every job.

Licensing, advertising, guarantees, standard specifications, codes, heating and roofing discussions, bookkeeping helps and service, tax information and service, collection bureau with reference and report file, employment bureau, and reduction of Workmen's compensation insurance rates are matters actively being pressed to promote better business in our trades.

B. F. John, Secretary.

◆

Michigan

The April issue of **Sheets** (Vol. II, No. 4) published by The Michigan Sheet Metal Roofing, Heating and Air Conditioning Contractors Association, aims to give the essential news—vital information of this industry periodically.

Credit is discussed. Preference Order No. M-126 is defined, as well as L-74 and L-41. The definition of heating equipment and emergency repairs are quoted. P-55, usable in a designated defense housing area as determined by FHA, is mentioned, as well as P-55 as amended.

Material Allotment Record (Form PR 1006) is reproduced and discussed.

A plan has been submitted to WPB in Washington that all defense housing permitted in the area be typed under as few classifications as possible to simplify the procedures now necessary under P-55. If other local associations are willing to consider endorsing the plan copies are available.

Kalamazoo: At the April meeting, the following officers were elected: President, Wm. Metzger, Jr.; Treasurer, William H. Persons; Secretary, R. T. Brundage. The local heating code was discussed. After the meeting, there was a bowling party in which ten members took part—Glen Rynbrand getting the high score.

For the April issue, the association is indebted to Peter Vander Waals, owner and operator of the Michigan Sheet Metal Works, Inc., 116 South Larch Street, Lansing, Michigan, a former president of the Michigan Association.

N. J. Biddle, Editor.

◆

Wisconsin

A Board of Directors and District Meeting of the Sheet Metal Contractors Association of Wisconsin, Inc., was held at Louis Hirsig's Mendota Lake Shack at Madison, Wisconsin, on Saturday, May 9, under the auspices of the Madison local.

The Board of Directors convened in the morning, with President Paul Krueger of Madison calling the meeting to order. Considerable correspondence and business was disposed of. The secretary was requested to attend and represent the State association at the Business Men's meeting at Chicago under the auspices of the War Production Board and report back at the Racine meeting.

Consideration was given the Sheet Metal Contractors bible. From information at hand and considering the war emergency conditions, it was decided to withhold compilation and publishing for one year.

Receipts and disbursements were gone over and found satisfactory. The secretary was requested to file with the U. S. Internal Revenue the report showing exemption from taxation of an organization of our type.

Following adjournment at 12:30 p. m., all participated in a ham dinner with the necessary refreshments. Immediately thereafter President Paul Krueger introduced the speaker of the day—Mr. Albrecht, representing War Production Board, who gave an illustrative and illuminating address on government edicts L-79, P-84, and PD-46. Many questions were answered.

Paul L. Biersach, Secretary.

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Florida

At the annual convention in Miami on the 17th and 18th of April, the following slate of officers was elected:

President: C. E. Brown—518 10th St. No., St. Petersburg, Florida.
1st Vice-Pres.: Wm. N. Palmer—15 N. E. 17th Terrace, Miami, Florida.
2nd Vice-Pres.: Geo. Ferber—4101 Evergreen St., Jacksonville, Florida.
3rd Vice-Pres.: E. H. Hale—314 Orange Ave., Fort Pierce, Florida.
Secretary-Treasurer: L. A. Burgess—915 No. Poinsettia Ave., West Palm Beach, Fla.

Roofing manufacturers were well represented as were the steel companies. No clay, tile or furnace manufacturers were represented. Business was conducted and informal talks were given by manufacturers' representatives and roofing and sheet metal contractors.

Two moving pictures of interest to our industry were shown by the representatives of Barrett Company and Johns-Manville.

On Saturday afternoon a bus trip through Miami Beach, Hialeah, Coral Gables and Miami proved of interest to a large group, for real Florida weather prevailed and the sun shone. The annual banquet on Saturday night was not served to as many as last year, but there was a fine floor show and orchestra. Dancing followed on the Roof Garden until 12:00 midnight.

On the night before the convention, traffic entering Miami was stopped, made to dim lights and proceed slowly. A heavy rain was falling and the going was not easy.

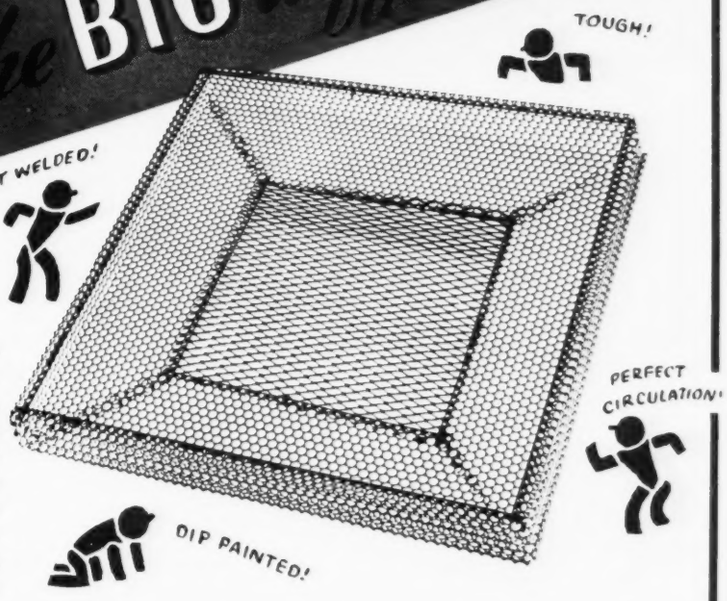
Roofing and sheet metal shops in Florida are closing, their owners are going into the service or working for someone else, but they keep on. This association of Roofing and Sheet Metal Contractors of Florida is not disbanding for the duration. Cooperation in defense work is essential. A vote of confidence in the officers and the objects of the organization was expressed at Miami. Show your position by contributing to the efforts of your association, not only by your $5 annual dues but by information which you may offer.

The "Florida Roofer" now begins its third year as the Official Publication of the Roofing and Sheet Metal Contractors' Association of Florida.

L. A. Burgess, Secretary-Treasurer.

(*Continued on page 78*)

This is the ALL STEEL Tampico FRAME that makes the BIG difference!



ANY good air filter does an efficient filtering job WHEN NEW. The better it does this job, however, the sooner it becomes clogged with dirt and other impurities which it filters from the air passing through it. The efficient filtering LIFE of the filter, consequently, depends upon how long the filter can be kept clean of this accumulated dirt. TAMPICO FILTERS DO A BETTER FILTERING JOB OVER A LONGER PERIOD OF TIME BECAUSE THEIR FRAME IS STRONG ENOUGH TO STAND HARD CLEANINGS AND A LOT OF THEM!

Tampico superiority is just that simple and just that definite. Compare the Tampico all-steel frame with the frame of any other throw-away type of filter on the market. You'll see the difference instantly!

$7.20 EXTRA PROFIT Per Gross

Don't throw used Tampicos away. Snip the wires, remove the filtering material and pack the empty frames (in reasonably good condition) into their original or other discarded cartons. When you have a minimum freight shipment, return them to us. We'll pay you 5c for each frame you send us, and we'll pay freight charges, too. You'll be helping to conserve materials for the war effort, and you'll be helping yourself to an EXTRA $7.20 profit per gross.

CHICAGO FILTER CO., JOLIET, ILLINOIS

SPOT WELDED INTO A SINGLE HUSKY UNIT



The back and four sides of the Tampico all-steel frame are spot-welded into a single husky unit that is dip-painted after completion. "All-over" perforations permit perfect circulation throughout the entire area of the filter. Rugged strength as well as minimum resistance to air flow is achieved.

Free SAMPLE

Chicago Filter Co., Joliet, Ill.
Gentlemen: Show me! Send me my free sample.

Name .....
Address ..... State .....
City .....

TAMPICO FILTERS

"The World's Largest Exclusive Air Filter Manufacturers"

New Products

For your convenience a number has been assigned each item. Circle the items in which you are interested on the coupon on page 74 and mail to us.

● Indicates product not listed in 1941 Directory.
△ Indicates manufacturer not listed in 1941 Directory.

56—Thermostatic Bimetal

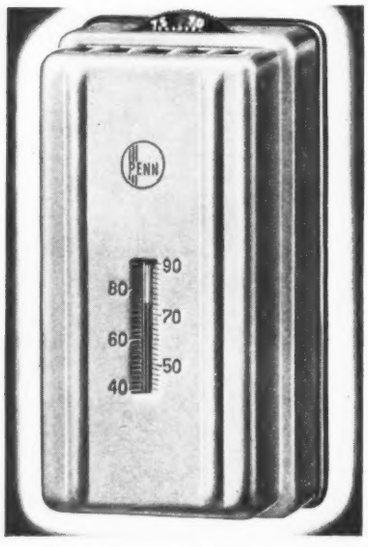
W. M. Chace Company, 1606 Beard Ave., Detroit, announces a new development in thermostatic bimetal. New alloys give an increased sensitivity over previous standard types with a reduction up to 40 percent in weight and mass of thermostatic bimetal element. Reduction in size of element makes for a saving in amount of material used and in mounting space.

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57—Thermostat

Penn Electric Switch Co., Goshen, Indiana, has developed a new line voltage, two-wire thermostat incorporating "on" and "off" positions on the calibrated dial. Designated as the 872A11 Series, this small, compact thermostat is suitable for unit heater application.

The Penn 872A11 thermostat permits manual control of the unit heater motor. The large, easily read calibrated dial incorporates "on" and "off" positions. For example, if unit heater is located near loading doors in a manufacturing plant, the thermostat dial can be moved manually to the "off" position to prevent unit heater operation during the period when doors are open.



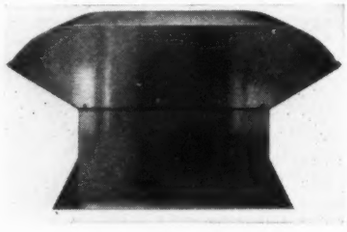
Heat anticipation for closer temperature control is provided by a tailored "heater" protected by a molded plastic cover. With proper heat anticipating heater, this thermostat is approved by the Underwriters for maximum rating as follows: ¼ H.P., A.C., R.I.; 1/6 H.P., A.C., S.P.; 0.1 to 0.5 Amp. D.C. Maximum voltage 250 A.C. or D.C.

Complete description and specifications are given in Bulletin UH-1B.

58—Blackout Roof Fan

The Allen Corporation, 9751 Erwin Ave., Detroit, offers the Type "H" Roof Fan for the solution of ventilation problems in blackout plants.

This new Type "H" roof fan is made in 30 and 60 in. sizes with a capacity range of 5,600 to 45,000 cfm. The V-belt driven multiple blade fan wheel has a large area requiring comparatively small motors. Type "H" is an integrally built roof fan whose installation is accomplished by securing to the roof over an opening made to the size of the fan housing and connecting electrically.



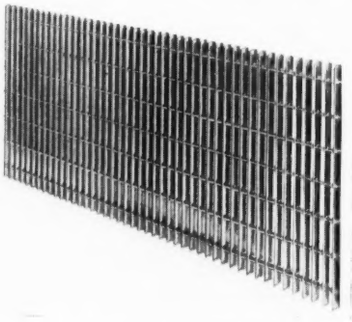
Counterbalanced dampers, which open and close automatically as the motor is turned on or shut off, provide automatic sealing against weather and against the loss of heat.

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59—Uni-Flo Elturn

Barber-Colman Company, Rockford, Illinois, offers the Uni-Flo Elturn for use in duct systems to eliminate necessity of long radius turns, allowing use of right-angle elbows.

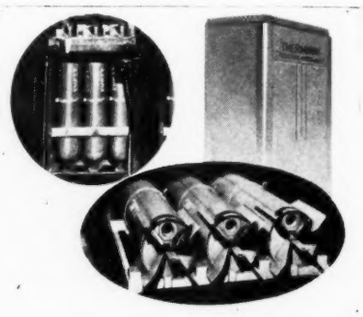
The Elturn is prefabricated of curved turning vanes, and provides uniform air flow around and beyond turn to reduce resistance caused by eddies, reverse air flow, and low pressure areas. When used at top of stack heads, device provides straight and uniform air delivery to outlet.



Sizes to and including 48 by 48 in.

△ 60—Brazing Method

Induction Heating Corporation, 389 Lafayette St., New York City, has developed a new method of brazing units of work at the rate of three brazes simultaneously every 35 seconds.



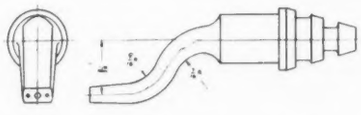
The problem of brazing a ¾-in. threaded flange into a completely closed 20-gauge sheet steel container was solved. Inductors, energized from a Model 1070 Thermonic Induction Generator, were placed directly over the flange and caused heating of the flange and a small area of the sheet steel container. A pre-placed ring of silver-alloy melted and flowed to form an air-tight joint.

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61—Airco Flame Cutting Tips

Air Reduction, 60 East 42nd Street, New York City, announces two additions to their line of oxyacetylene flame cutting tips.

Style 108 is bent in an offset shape, to permit cutting along a line 21/32-inch from the vertical centerline of the torch head or barrel—to meet the problem of cutting close to bulkheads, flanges or shoulders. Style 108 has milled flat sides, with two preheat flames, and is suitable for either machine cutting or hand cutting operations. It is available in sizes No. 1 to 3 for cutting steel up to 1½ inches.



Style 139 is a straight tip with one preheat orifice, for certain machine or hand cutting operations—a companion tip to Style 119, which carries two preheat orifices. Style 139, made in sizes Nos. 0 to 3, is adapted to sheet metal cutting operations in which light preheat is desired.

FIX ALL FURNACES NOW!

Do not wait until fall before checking the operating condition of your customers' furnaces. This may prove to be a costly mistake to both your customers and yourself. Do it Now . . . while repair parts are still available. However, when you do repair . . . remember conservation is the by-word. Do not install new furnaces except where absolutely necessary . . . conserve all iron and steel . . . return all unused metal to the government . . . and if you do need repair parts, Northwestern Stove Repair Company is in a position to supply most every type and kind. Cooperate with your government by assuring them that efficiently operating furnaces will help conserve fuel as well as keep up the public morale in your territory.

"Keep 'em Smiling," that smile of warm comfort next winter . . . fix their furnaces NOW . . . and be sure!

NORTHWESTERN STOVE REPAIR CO.

Manufacturers of Stove, Furnace and Boiler Repairs

662 West Roosevelt Road Chicago, Ill.



America's Secret Weapon

You won't find it on the production lines at Rock Island or Willow Run.

It isn't guarded at the Brooklyn Navy Yard, or tested at Aberdeen.

But it's the toughest weapon these men you are looking at will ever take into battle. It's the stuff with which all our wars are won.

The boy in the uniform doesn't call it *morale*. That's a cold potatoes word for something John American feels deep and warm inside.

Perhaps he can't give it a name. But he can tell you what it's made of.

It's made of the thrill he gets when his troop train stops at a junction point and fifty good-looking girls are at the station with cigarettes.

It's made of the appreciation he feels for a bright new USO clubhouse where he and his friends can go for a few hours' rest and relaxation.

It's made of laughter and music—when Bob Hope or Lana Turner visits his camp with a USO show.

It's made of his invitations to the homes of pleasant strangers.

It's made of a cup of coffee and a Yankee smile—at some lone outpost in Alaska or in the Caribbean.

Maybe it's just a feeling of kinship with this land of a hundred million generous people. Maybe it's just the understanding that this whole country cares; that the soldier is bone of our bone; that he and we are one.

Name it if you can. But it's the secret weapon of a democratic army—a weapon that can never be *ersatzed* in Germany or Japan.

What can you do to sharpen this weapon? Give to the USO. This great national service organization that overrides race and creed has been entrusted by your government with responsibility for the service man's leisure needs. With maintaining clubhouses and providing camp shows, with a hundred thoughtful services to our men at home and abroad.

The needs of USO have grown as enormously as our armed forces themselves. This Spring we must have $32,000,000.

Give all you can—whether it's a lot or a little.

Send your contribution to your local chairman or to USO, Empire State Building, New York City.

★ USO ★

New Products . . . . . .

For your convenience in obtaining information regarding these items, use coupon on page 74.

62—DU Oil Furnaces

H. C. Little Burner Co., 2nd & Lincoln, San Rafael, California, has designed a line of new oil furnaces for war housing projects for both basement and first floor location. They may be installed with ducts as warm air furnaces of the basement or closet type, or with a curved chamber and grill, used as space heaters. They may be totally concealed, partly re-



cessed or completely in the open. Operation can be manual or automatic.

Warm Air circulation is either by gravity or with forced air fan. Two sizes are available with a total range of 40,000 to 70,000 Btu output.

The manual units in the large size stand only 5 ft. high, and occupy a floor space 22 in. square. Low stack draft requirements permit the use of low chimneys.

Laboratory tests show efficiencies from 73 to 75.2 percent, with CO_2 readings as high as 12 percent. They are listed by the Underwriters' Laboratories.

◆

• 63—Flash-Off No. 99

Acme White Lead and Color Works, Dept. FS-12, 8250 St. Aubin Ave., Detroit, is introducing Acme Quality Industrial Finish Flash-Off No. 99 designed to eliminate weld spatters and the time cost of removing them, plus a strong smooth weld.

In use, the mechanic brushes, sprays, or wipes on Industrial Finish Flash-Off along the edges of the metal surfaces to be joined by the weld. Then when the welding is done, metal chips bounce or fall off instead of adhering to areas adjacent to the seam.

64—V-60 Defense House Unit

International Heater Company, Utica, N. Y., offers the V-60 new defense housing unit. Type FAP (Forced Air with Plenum) has a Btu capacity at the register of 56,900, and is used generally for first floor installation. Type FA is without plenum and used for installation in the basement.

A large amount of heating surface is obtained through the use of fins. The ratio of the heating surface to the grate area is approximately 20 to 1.

The ashpit section is raised 3 inches from the floor and is supported by three strong legs. The grates are of the rocking type, fine enough to support No. 1 Buckwheat coal.

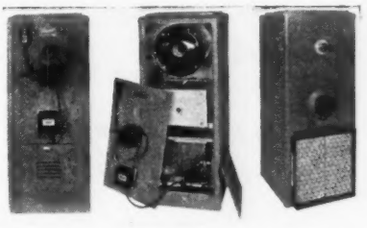
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65—Tempered-Aire Unit

Gar Wood Industries, Inc., Air Conditioning Division, 7924 Riopelle St., Detroit, has just introduced a new Tempered-Aire heating unit.

The new Gar Wood Model "Seventy-Five" is a wartime product, stripped down to essentials, designed for installation in small dwellings and defense-type homes and sells at a new, low price. The capacity is 75,000 Btu per hour at the bonnet. The air delivery is 750 cfm at 160 deg. Model "Seventy-Five" comes within the Government's limitation of 26x26 in. plus allowance for burner enclosure.

In this model the fire box and fire bowl are combined into a single as-



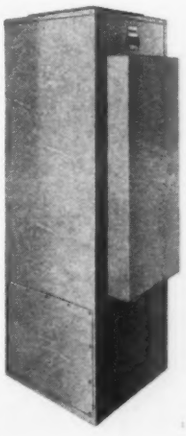
sembly. The economizer contains four tubes arranged in pairs at each side in order to make room for a six-inch flue pipe in the middle. This pipe conducts the gas from the breeching at the front so as to give a rear stack connection. It provides a third pass to the gas travel and raises the air velocity over the tubes by reducing the free area.

The burner is identical to the larger Gar Wood units as regards air and oil control and delivery to the fire. One end of the firebox forms a windbox for stabilized air delivery and the same familiar fire bowl, swirl plate, metering chutes, firing tube assembly, etc. are used.

One motor operates both blower and fuel unit for burner.

66—War Housing Units

American Radiator & Standard Sanitary Corporation, Box 1226, Pittsburgh, offers the following units to meet government specifications for war housing:



The Oneida gas-fired winter air conditioner—a moderately priced unit with blower underneath burner and occupying maximum space of 26 x 24½ inches. Heating element and radiator of steel, with large heating surface for good efficiency. Quiet, dependable burner, built-in draft hood, and equipped with all controls. Completely assembled and wired for labor-saving installation. Three sizes—28,000, 40,000 and 56,000 AGA Btu. output at bonnet. Air volume (cfm range) 400-700.

The Chippewa gas-fired winter air conditioner has a cast iron heating element and radiator that provides maximum efficiency. Cast iron burner, atmospheric type. Double inlet blower with self-aligning bearings located underneath burner. Rubber mounted motor with thermal overload protection. Equipped with complete controls and factory assembled and wired for quick installation. Maximum floor space occupied—24½ x 26 in. Two sizes,—48,000 and 76,000 AGA output at bonnet. Air volume (cfm range) 400-700 and 600-1100.

The Bayport winter air conditioner (Illustrated) is a compact oil-fired unit with blower-motor located underneath heating element and enclosed within jacket. Construction features include steel heating element with welded joints; jacket with extension that conceals controls; oil burner of vaporizing type with mechanical draft fan; double inlet type blower with self-aligning bearing sockets. Motor has overload protective device. Standard equipment includes necessary controls. Unit comes in one size and is shipped assembled and wired. Btu. output at bonnet—65,000; Air volume (cfm range) 600-950; Space occupied —25 x 25 in.

◆

67—All-Position Electrode

General Electric Company, 1 River Road, Schenectady, N. Y., announces an all-position, alternating-current electrode—Type W-26.

The W-26 fulfills a need for a vertical and overhead a-c welding electrode that would give adequate penetration, and practically flat fillet contour. It is available in ⅛ in., and $\frac{5}{32}$ in. diameters. Other sizes from $\frac{1}{16}$ in. to ¼ in. are expected shortly.

INDUSTRY ANSWERS THE CALL!



32,145 Firms With Over 17,700,000 Employees Have Installed the . . .

PAY-ROLL SAVINGS PLAN



Have YOU Started the Pay-Roll Savings Plan in YOUR Company?

Like a strong, healthy wind, the Pay-Roll Savings Plan is sweeping America! Already more than 32,000 firms, large and small, have adopted the Plan, with a total of over seventeen million employees—and the number is swelling hourly.

***But time is short!*. .More and more billions are needed, and needed fast, to help buy the guns, tanks, planes, and ships America's fighting forces *must* have. The best and quickest way to raise this money is by giving *every* American wage earner a chance to participate in the regular, systematic purchase of Defense Bonds. The Plan provides the one perfect means of sluicing a part of ALL America's income into the Defense Bond channel regularly every pay-day in an ever-rising flood.**

Do *your* part by installing the Pay-Roll Savings Plan *now*. For truly, in this war, this *people's* war, VICTORY BEGINS AT THE PAY WINDOW.

Plan Easy to Install

Like all efficient systems, the Pay-Roll Savings Plan is amazingly easy to install, whether your employees number three or ten thousand.

For full facts and samples of free literature, send the coupon below—today! Or write, Treasury Department, Section C, 709 Twelfth Street NW., Washington, D. C.

MAIL THIS COUPON NOW

Treasury Department, Section C
709–12th St., NW.
Washington, D. C.

We want to do our part. Please rush full information regarding the Pay-Roll Savings Plan.

NAME .....
POSITION .....
COMPANY NAME .....
ADDRESS .....
NUMBER OF EMPLOYEES .....



MAKE EVERY PAY-DAY . . . BOND DAY!

U. S. Defense BONDS ★ STAMPS

This space is a contribution to NATIONAL DEFENSE by American Artisan

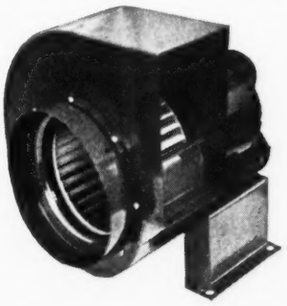
GPO 16—26944-1 **Form No. DSS-280**

New Products . . . . . .

For your convenience in obtaining copies of new Literature use the coupon on page 74.

68—Single Inlet Blowers

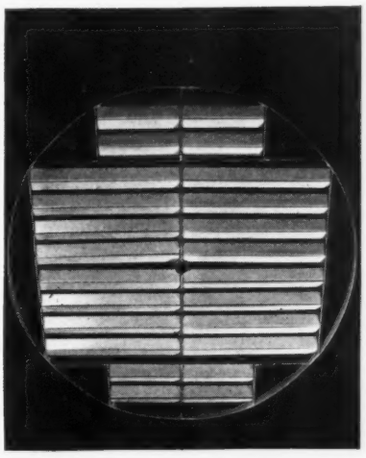
Lau Blower Company, Home and Orchard Ave., Dayton, Ohio. offers a single inlet blower with direct drive, or belt drive, and equipped with either AC or DC motors, from 5 in. up to 9



in. in diameter. Larger sizes supplied upon receipt of specifications.

Suitable for industry to carry away fumes and hazardous odors, to bring in fresh air, or exhaust foul air.

Bulletin No. 388-A gives dimensions and performance data for various static pressures, and includes a series of sixteen drawings showing types of discharges.



69—Equalizing Damper

Anemostat Corporation of America, 10 E. 39th Street, New York City, offers the Anemostat equalizing damper for equalizing one-sided air flow—controlling the direction of flow as well as the volume up to 60 percent.

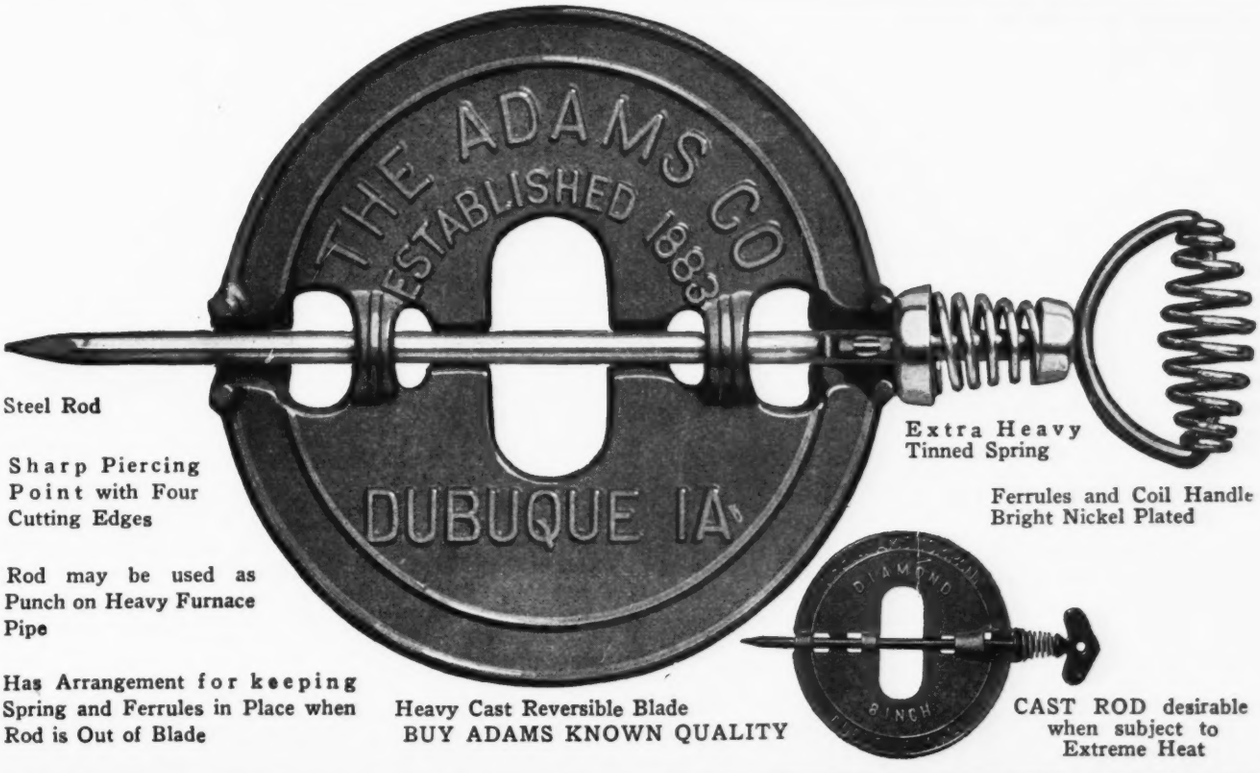
The damper fits at the top of the supply duct leading to the outlet. A series of scientifically designed blades control the flow of air.



70—Foot Pedal Control

Libert Machine Co., Green Bay, Wisconsin, has adopted complete foot pedal control on all Libert models.

Two new shears have also been added to the Libert line—models 1260 and 1460 with 60-in. throats, for sheet metal capacities up to 12-gauge and 14-gauge mild steel respectively. Both are of electric-welded, steel-fabricated construction, with V-belt, single speed drive and foot pedal control. They are equipped with standard Ram construction, which requires two adjustments for most shearing jobs—length of stroke and depth of penetration.



Steel Rod

Sharp Piercing Point with Four Cutting Edges

Rod may be used as Punch on Heavy Furnace Pipe

Has Arrangement for keeping Spring and Ferrules in Place when Rod is Out of Blade

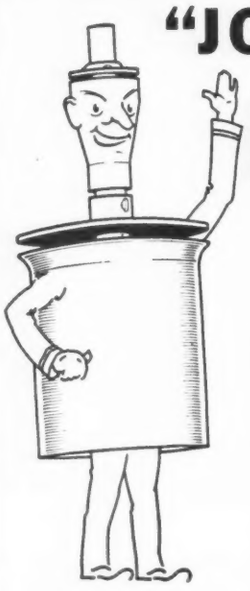
Heavy Cast Reversible Blade
BUY ADAMS KNOWN QUALITY

Extra Heavy Tinned Spring

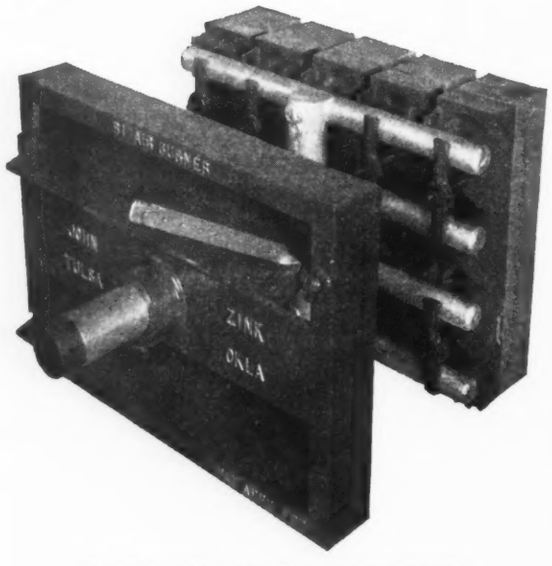
Ferrules and Coil Handle Bright Nickel Plated

CAST ROD desirable when subject to Extreme Heat

DIAMOND SMOKE PIPE DAMPER
Manufactured by THE ADAMS COMPANY Dubuque, Iowa, U.S.A.
ESTABLISHED 1883



"JOHN ZINK BURNERS are Ideal for Heating and Power for Government Projects"



SERIES "R" BURNER

This type burner is being installed in the boilers at one of the largest air-bases in the country.

SERIES "R" is a refractory type gas burner —especially adapted for installing in boilers having very low draft and small combustion space.

John Zink Company

TULSA, OKLA.—4401 S. PEORIA AVE.

New York City—342 Madison Ave.
Atlanta, Ga.—299 Techwood, N. W.

New Literature . . . .

For your convenience in obtaining copies of new Literature use the coupon on page 74.

257—Alternate Metals for War Production

American Nickeloid Company, Peru, Illinois, has prepared a news story on metal conservation—alternate metals which conserve substantial quantities of critical metals.

Their pre-plated metals are composed for the most part of steel with a critical non-ferrous metal plated on the surface, furnished in sheets, long continuous coils for automatic fabrication, strips and round edge flat wire.

◆

258—Oil Burner Handbook

An Oil Burner Handbook, by L. J. Whelan, has been published by The Master Plumber & Heating Contractor, Brooklyn. Price $2.50.

The chapters discuss in detail domestic and industrial burners, fuel oil, combustion, boilers, oil burners, storage tanks, servicing, installations, use of tools, electricity, controls, survey, definitions, etc., with questions at the end of each chapter. The chapters on servicing explain simply reasons for: Burner starts and stops frequently; not enough heat in house; oil odors; high oil consumption; summer care of burner; starting burner in the fall, etc.

The book uses everyday language. This edition contains specially prepared chapters for the home owner.

L. J. Whelan, the author, is in charge of the Oil Burner Department, New York Technical Institute.

◆

259—Lessons in Practical Arc Welding

Hobart Trade School, Inc., Box EW-82, Troy, Ohio, has published "Lessons in Practical Arc Welding" by W. J. Chaffee—118 pages, paper cover, price $.75, 1942 copyright. Special prices to schools.

This book contains the complete series of 41 arc welding lessons offered at the Hobart Trade School. Chapter headings include Preliminary Instructions; Starting & Manipulating the Arc; Welding Common Joints with Bare Electrodes; Welding Light Gauge Sheets with Coated Electrodes; General Welding with Coated Electrodes in the Flat—Horizontal—Vertical—Overhead Position; Pipe Welding; Welding Cast Iron; Special Practice and Tests. Text also contains a suggested classroom procedure and ready reference index. The author has explained the fundamentals of arc welding in a simple and easily comprehensible manner.

◆

260—New Synchronous Motor Booklet

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., offers a new four-page booklet describing the "HG" synchronous motor for coupled, belted and geared service—Leaflet L-20653.

The booklet lists the operating characteristics of the motor and stresses distinctive features, construction and application. Seven illustrations show the various parts of the motor and each is described in detail.

These "HG" motors are recommended for all types of constant speed machinery such as fans, blowers, compressors, pumps, rubber mill lines, motor generator sets, etc. They afford a very economical means of improving power factor and thereby reducing power cost. These motors are normally furnished for 100 per cent or 80 per cent leading power factor operation, however, they can be designed with lower leading power factors where additional power factor correction is desired.

◆

Consumer Literature

Thermo-Drip Automatic Humidifiers.—Automatic Humidifier Company, Cedar Falls, Iowa, is distributing a dealer sales-aid folder in two colors giving the human interest reasons for equipping warm air furnaces with this accessory. Space is alotted for dealer imprint. A request on the dealer's letterhead brings a supply. Coupon No. 261.

New Literature . . . .

For your convenience in obtaining copies of new Literature use the coupon on page 74.

262—How Are Balls Made Round?

Atlas Ball Division, SKF Industries, Inc., Front Street and Erie Ave., Philadelphia, is distributing an 8-page folder telling "How Balls Are Made Round," pressing, flashing, round grinding, multiple groove grinding, and tumbling, then heat treating, precision grinding, lapping, followed by inspection and gauging. Atlas balls are made of steel, bronze and special metals.

◆

263—Coke for Domestic Use

Koppers Company, Gas and Coke Division, Koppers Building, Pittsburgh, has just published "Coke for Domestic Use" (Form F-1) describing the Bryant coke stoker for domestic furnaces. The stoker is completely automatic. Construction, installation and operation are illustrated. A heat regulator for domestic furnaces is also shown, and the advantages of coke for household use are listed.

◆

264—Capillary Air Conditioners

Air and Refrigeration Corporation, 475 Fifth Avenue, New York City, has issued a new bulletin—G-2—describing the Capillary Cell and its application in the air conditioning equipment as a direct heat transfer surface between water and air. The standard cells, having a face area of 20x20 in. are 8 in. in depth and are filled with glass filaments, arranged essentially parallel to the flow of liquid and air, thus offering low resistance to air flow.

The book outlines the functions of the cells for cooling and dehumidifying, humidifying air cleaning, evaporative cooling, condenser water cooling, fume absorption, etc. Engineering and performance data are presented in convenient tabular and graphic form.

◆

265—For Heating Controls

Penn Electric Switch Co., Goshen, Indiana, manufacturers of automatic switches and controls, has just issued its 1942 Condensed Catalog on Heating Controls. This sixteen page catalog contains, in condensed form, complete information on Penn's line of automatic heating controls Illustrations are included for each type of control covered, together with its application, features, specifications, ordering information, approximate shipping weight and prices.

Interesting to note in this new Condensed Catalog is the simplified and concise arrangement of the information required by the user to make it easy for him to order the desired controls.

Copies of Bulletin 1508-G are available free.

◆

266—Let's Write Good Letters

The American Rolling Mill Co., 703 Curtis St., Middletown, Ohio, has published "Let's Write Good Letters" by Sherman Perry, to help Armco employees write better letters—letters that are clear, concise, tactful and effective. Price: $1.00 plus 3 per cent sales tax in Ohio.

Contents include a discussion of "What makes good writing good?" (oneness, thrust, stick together, enough and no more, change of pattern); words, sentences, paragraphs, on reading, power phrasing; imagination; the malady of total recall; how to organize thought; sales letters; when things go wrong; the secretary; the telephone; things a good office employee should know and be able to do; a word to managers and beginning stenographers; mechanics of letter writing (the typewriter, punctuation, the hyphen, syllabication, capitalization, abbreviations, separate words, plurals, use of figures); essential English; report writing; and the way it's written.

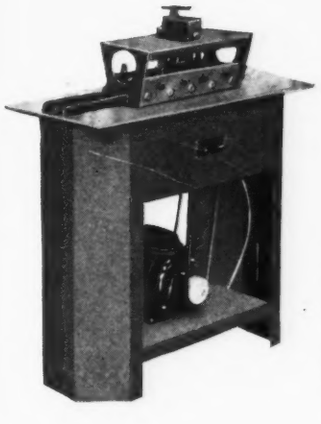
Their earlier book, "Making Letters Talk Business," found its way outside the organization and created such a demand that five more editions were necessary.



". . . want to have YOUR BID considered for that Government Job?"

YOU'LL NEED A LOCKFORMER TO MEET TODAY'S COMPETITION!

"Salesmanship" doesn't mean a thing to Uncle Sam. He's interested only in what he GETS for what he PAYS. Unless your price is competitive, your bid is out—and, to MAKE your bid competitive, you need a Lockformer . . . for two very good reasons:



1. Only on a basis of Lockformer fabrication methods can your bid compete with other bids so figured.
2. Only by USING Lockformer Equipment can you keep your own costs low enough for you to "come out" on the job.

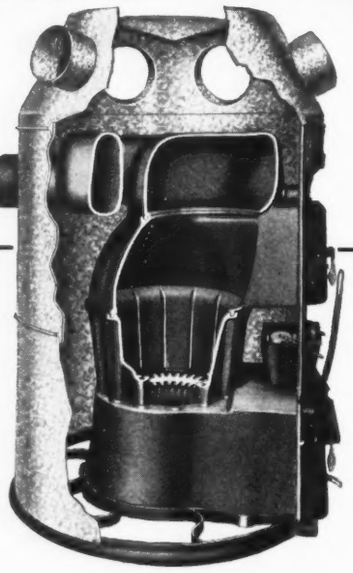
There is a wide range of models and attachments (beginning with the moderately priced Lockformer 24) for making Pittsburgh Locks, Right Angle Flanges, Double Seam Locks and Drive Cleats. May we send you a catalog?

★

ONE MAN AND A LOCKFORMER CAN MAKE MORE PITTSBURGH LOCKS THAN SIXTEEN MEN WORKING AT EIGHT BRAKES.

The LOCKFORMER Co.
4617 ARTHINGTON STREET, CHICAGO, ILLINOIS

THE SERIES "A" WISE FURNACE



Your DEFENSE PROGRAM *Against* WASTEFUL HEATING

Wasteful heating must go! The National Defense Program is fittingly concerned with the conservation of fuel . . . and inefficient furnaces not able to extract the utmost from fuel are sabotaging our efforts toward a total victory.

Check the furnaces in your neighborhood now! Repair whenever and wherever possible . . . but if the unit is too far gone, replace it with a WISE Series "A." Here's a top quality furnace that will guarantee years of carefree, healthful heating and, most important, will not waste any of the all important fuel.

Excellent construction with one-piece ashpit and lower front to eliminate joints, one-piece cellular firepot and self-cleaning radiator assure comfortable heat in the most violent weather.

Write today for further information.

THE WISE FURNACE COMPANY

AKRON OHIO

New Literature . . . .

For your convenience in obtaining copies of new Literature use the coupon on this page.

267—Explosion-Proof Thermostats

White-Rodgers Electric Co., 1209 Cass Ave., St. Louis, is distributing a two-page leaflet illustrating and describing their new explosion-proof thermostats designed for heating, air conditioning and refrigerating applications where hazardous conditions exist, such as oil refineries, munition plants, cleaning plants and similar locations.

◆

268—For Conservation of Fuel Oil

The Hotstream Heater Co., Combustion Equipment Division, 8007 Grand Ave., Cleveland, has edited their "Manual of Information" on natural draft oil burning to conserve fuel, yet increase output.

The text of this publication is a by-product of the exhaustive computations and tests made in the engineering department of the Combustion Equipment Division, under the supervision of M. W. Crew, chief engineer. It contains accumulated essential information and correlative tables covering all the factors governing industrial oil-burning problems.

◆

269—Speeding War Production Welding Technique

The Lincoln Electric Company, 12818 Coit Road, Cleveland, has just published a new bulletin—The "Fleet-Fillet" Welding Technique, for speeding war production—containing 18 pages, 8½ x 11 inches, and 36 illustrations, including photos and line drawings. Planned as ready reference material for plant production officials, welding operators, and all others concerned with welding. Basically, the technique is very simple and makes possible faster weld production without increasing operator fatigue, reduction in amount of welding electrode per foot of weld, and lower welding costs.

◆

270—Dust-Stop Filter Selling Aids

Owens-Corning Fiberglas Corporation, Nicholas Building, Toledo, is offering heating and air conditioning equipment distributors and dealers a series of free selling aids. The aids are aimed at helping to increase summer business in air filter replacements, and in furnace overhauling and repairs. They include a portfolio for use by distributors and their salesmen, imprinted with the distributor's name and address.

Folders and follow-up post cards are offered to dealers, to be mailed to householders—forceful reminders that now is the time to change filters to make sure that blower fans will circulate cool, clean air during the summer.

Two folders are offered dealers for mailing to owners of unsupervised commercial installations, such as drug stores, restaurants, shops, etc.

Other aids are provided for use later in the summer and in the fall.

FOR YOUR CONVENIENCE

American Artisan, 6 N. Michigan Ave.
Chicago, Ill.

Please ask the manufacturer to send me more information about the equipment mentioned under the following reference numbers in "New Products" and "New Literature." (Circle numbers in which you are interested):

56	57	58	59	60	61	62
63	64	65	66	67	68	69
70						
257	258	259	260	261	262	263
264	265	266	267	268	269	270

Name .....

Company .....

Address .....

With The Manufacturers . .

Expands Plant Facilities

Schwitzer-Cummins Company, 1145 East 22nd Street, Indianapolis, Indiana, has made a considerable addition to facilities for manufacturing centrifugal blowers, blower wheels and ventilators. And coincidental with this has added sizes of Hy-Duty Double Inlet Blowers particularly



intended for the requirements of the defense housing plans. Heavy war contracts have pushed the Blower Division completely out of Plant No. 1 and it has been removed to larger quarters in the new plant purchased late in 1940 for manufacture of Stokol stokers, blowers and ventilators. This plant houses the entire activities of these products. The removal of the blower wheel department to Plant No. 2 adds to the capacity for blowers and wheels, which has been taxed by defense needs.

◆

Simplex Oil Heating Moves

Simplex Oil Heating Corporation, announces the removal from 21 West Street, New York City, to 191 Central Ave., Newark, N. J. The company maintains a direct wire for New York customers.

◆

West Coast Ventilator Production

The Swartwout Company, Cleveland, has organized The Swartwout Pacific Co., with offices at 560 Seventh St., San Francisco, and complete facilities for manufacturing the industrial roof ventilators in the Swartwout line.

◆

Personal Appointments

Appointment of **P. Y. Danley** as assistant sales manager of the **Westinghouse Merchandising Division** and **H. F. Hildreth** as manager of commercial refrigeration and air conditioning sales was announced by T. J. Newcomb, division sales manager. Both men will continue to make their headquarters in the Springfield, Mass., Westinghouse plant.

Mr. Danley continues as head of war products of the Merchandising Division, a position he has held since August, 1941. He has been associated with Westinghouse for 29 years, starting as a student in the East Pittsburgh works after his graduation from University of Pittsburgh in 1913.

Mr. Hildreth has been sales development manager of the department he now heads since July, 1941. He joined Westinghouse in 1920 as student engineer in the East Pittsburgh works, after his graduation in mechanical engineering from Pratt University.

◆

J. E. Corbett has been appointed manager of the Moline, Illinois, branch **Penn Electric Switch Co.**, Goshen, Indiana. For the past five years, Mr. Corbett has been a sales engineer for Penn in the New York territory.

◆

Howard C. Shilling, who was in temporary charge of the Moline office on a part-time basis, will now be able again to devote his entire attention to the Chicago territory in conjunction with **E. B. Maire**, Chicago branch manager.

◆

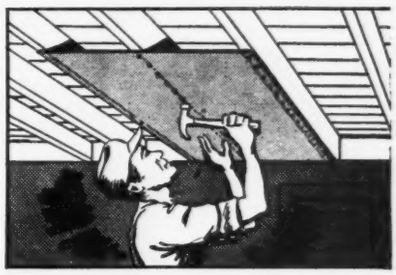
David H. Butler, associated with the Chicago office of the **Iron Fireman Manufacturing Company**, has been appointed chief of the newly created heating section of the War Production Board Plumbing and Heating Branch.



A·R·A

ASBESTOS • RETURN • AIR

SHEETS

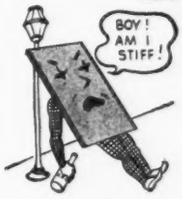


WE'RE AT WAR!

YOU CAN'T GET METAL!

You can make Ducts, Fittings, Round Pipe, and Casings out of A. R. A. Sheets using your own present shop tools.

A. R. A. Sheets come 33″ x 48″ and 16½″ x 48″, are about 3/16″ thick, and weigh about one-half pound a square foot.



RIGID

A. R. A. Sheets are rigid yet not brittle. They can be bent in the brake or rolled on your rolls.

TOUGH

A. R. A. Sheets are really tough. You can't tear 'em, and you can't break 'em. They are Mullen Tested (bursting) over 200 lbs. per square inch.





FIREPROOFED

Completely Asbestos-clad, A. R. A. Sheets give you a strong easy-to-handle sheet which has been tested and approved as the safest all around sheet of its kind.

LIGHT

Altho A. R. A. Sheets weigh only ½ lb. per sq. ft., special design and construction give it great strength and rigidity, making A. R. A. a smooth, durable, waterproofed, lightweight sheet.





STRONG

A. R. A. Sheets will not dry out, crack, crumble or chip. You can depend on their strength for lasting service.

CUTS EASY

A. R. A. Sheets can be cut into any desired size or shape easily with your regular snips, saw, or sharp knife.

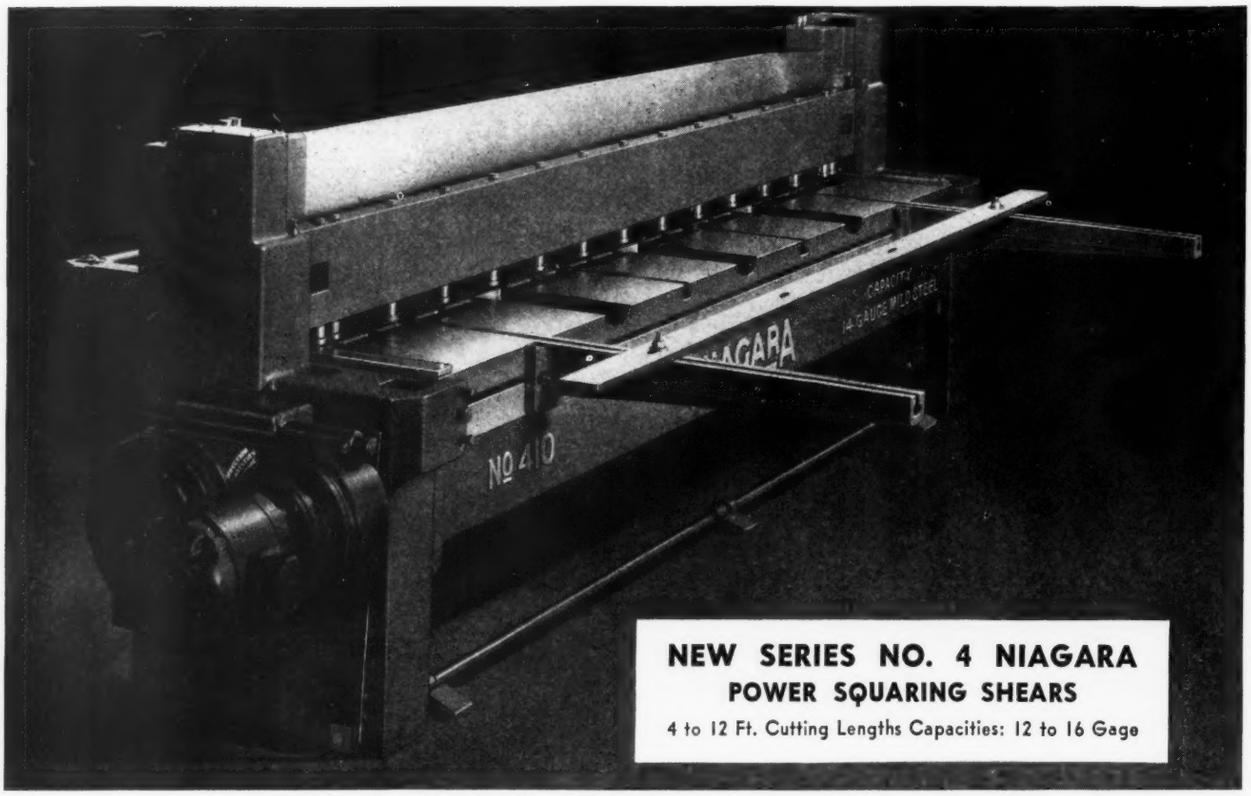


Packed: 20 sheets 33″ x 48″ per carton.
40 sheets 16½″ x 48″ per carton.
A carton weighs about 100 pounds.

Write for Samples and Information

GRANT WILSON INC

4101 WEST TAYLOR ST., CHICAGO, ILL.



NEW SERIES NO. 4 NIAGARA
POWER SQUARING SHEARS
4 to 12 Ft. Cutting Lengths Capacities: 12 to 16 Gage

These new Shears cut straight to within a few thousandths of an inch. High production results from their speed of 75 strokes per minute, instant acting sleeve clutch and convenient operation.

Drive is enclosed in oil tight case. Motor is direct connected. Standard equipment includes ball-bearing, self-measuring, parallel back gage, front and side gages, and four edge, solid tool steel knives. Niagara Machine & Tool Works, Buffalo, N. Y., Branches: New York, Cleveland, Detroit.

CONCO Domestic STOKERS

"They Also SERVE"

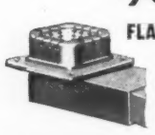


ONLY CONCO HAS THE "FUEL MISER"

For Homes Five to Twelve Rooms

CONCO DOMESTIC Stokers — as well as Conco INDUSTRIAL Stokers — speed Uncle Sam's Victory program by cutting domestic consumption of vital U. S. fuel. Conco Domestic Stokers serve also to cut steel consumption, for they are built to serve many years without replacement or repair. Today, Conco's many exclusive construction features — Flaming Forge Burner, Magic Hand Controls and Fuel Miser — are features more important than ever before. Write for full details.

Featuring:



FLAMING FORGE BURNER
A tough, massive, high alloy, self-cleaning burner. Heavily built. Won't clog or burn out.



CONCO'S EXCLUSIVE FUEL MISER
Cuts fuel costs up to 1/3! Fully tested; trouble-free. Maintains even fire-bed; prevents overcoasting of thermostat.

CONCO'S SUMMER SALES PLAN FOR DEALERS

Write for It Today

Turn summer-time to profit-time with Conco's Summer Sales Plan. This attractive manual tells you how.

CONCO CORPORATION
COAL OIL AND GAS HEAT • MENDOTA, ILLINOIS
DIVISION H. D. Conkey AND COMPANY

With the Manufacturers . . .

Personal Appointments

J. Harry Ebbert, sales manager of **The Armstrong Company,** has been made vice-president and general manager succeeding John L. Day, whose death occurred April 4.

Mr. Ebbert assumes his new duties with a background of thirteen years' experience with The Armstrong Company and a knowledge of the general problems of the industry. He is treasurer of the Chicago Convention Committee of the National Warm Air Heating and Air Conditioning Association and has given numerous talks on furnace cement to warm air heating groups throughout the country.

He will move his headquarters from Chicago to Detroit, general offices of the Company, from where he will direct operations of all the Armstrong plants located at Detroit, Chicago and Dallas.

Armstrong is the manufacturer of "THARCO" asbestos furnace cement.

◆



Fred Kaiser

Minneapolis - Honeywell Regulator Company, Minneapolis, announces the appointment of **Fred Kaiser** as Zone Manager of the Chicago Zone, replacing **Charles L. Saunders,** who recently resigned to associate himself with the War Production Board at Washington, as Chief of the Instrument Section in the Machinery Division.

Fred Kaiser, for the past three and a half years has been manager at Detroit, and prior to that, Manager at Buffalo and Syracuse, New York.

◆



D. J. Peterson

D. J. Peterson, Branch Manager at Buffalo for **Minneapolis-Honeywell Regulator Company,** has been appointed Branch Manager at Detroit succeeding Fred Kaiser, who has been transferred to head up the Chicago Zone office.

Peterson has been with M-H organization sixteen years.

He will be succeeded at Buffalo by **Herman (Jum) Seelbach, Jr.,** who has been attached to the Air Conditioning Division of that office.

◆

J. C. Wayne succeeds **O. A. Reiter** as advertising and sales promotion manager of **The Hotstream Heater Co.,** Cleveland. Mr. Reiter has become associated with the War Production Board.

◆

Samuel R. Noble, Vice President and Sales Manager of **Maurey Manufacturing Company,** Chicago, died on Sunday, May 10th.

◆

M. E. Clark, sales manager of **Randall Graphite Products Corporation,** 609 West Lake Street, Chicago, is now a major in the Ordnance Department and located in Aberdeen, Maryland, since May 1st.

During World War I, Mr. Clark served with the 6th Infantry USA.

◆

Cary D. Waters, president of **C. J. Tagliabue Mfg. Co.,** Brooklyn, New York, died on May 9.

◆

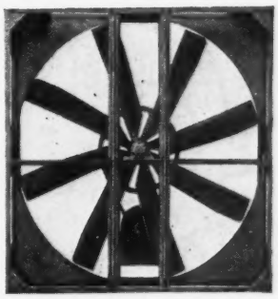
Frank H. Dewey, general manager of the **Gar Wood Air Conditioning Division,** Gar Wood Industries, Inc., Detroit, has been elected a vice president of the company. Mr. Dewey will continue his duties as general manager of the Air Conditioning Division.

Go After

Priority-Rated Jobs

with Coolair TRADE MARK

Exhaust Fans



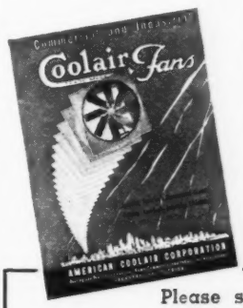
HEAVY DUTY FAN

Coolair Fans are made in a wide range of sizes to meet any ventilating and cooling need. Heavy Duty Fans deliver up to 142,000 cubic feet of air per minute; lighter units with sound-absorbing springs for ultra-quiet operations deliver up to 38,000 cubic feet.

HUNDREDS of Coolair units now working in both war production plants and essential civilian services, factories and businesses give an idea of the need for Coolair — and the market has hardly been touched! Cash in on this opportunity to broaden your operations and increase your business this summer selling and installing Coolair Commercial and Industrial Exhaust Fans!

Coolair, with more than 14 years of experience and leadership in the making of exhaust fans for ventilating and cooling, assures you certified air delivery and the extra, built-in quality that means greater customer satisfaction. Precision-built welded steel frames, eight reinforced steel blades, oversized ball bearings, sound-absorbing springs and streamlined inlet insure quiet, efficient, economical operation and a minimum of those service calls that eat into profits!

ACT NOW! *Take advantage of the sales and profits Coolair offers.*



Write or wire for the new Coolair Industrial Bulletin which shows Coolair Fans at work and describes the full line.

Mail this Coupon *Today!*

Please send me the new Coolair Bulletin and dealership information at once.

Name .....

Address .....

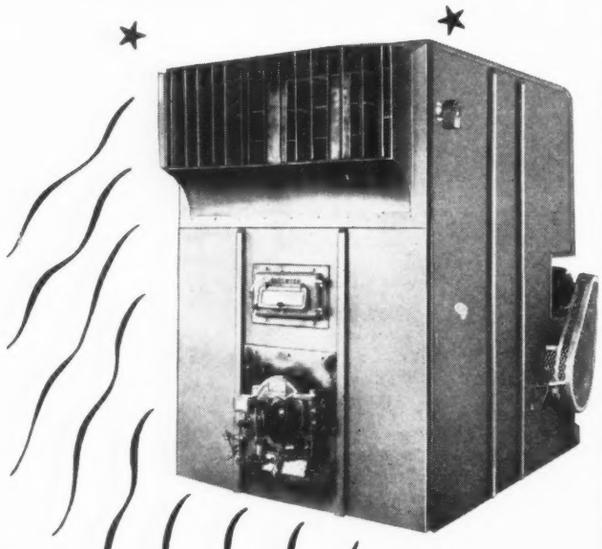
City ..... State .....

Coolair Ventilating and Cooling Systems

AMERICAN COOLAIR CORPORATION

Manufacturers . . . . JACKSONVILLE, FLORIDA

THE DIRECTHERM HEATER



"TURNS ON THE HEAT" ON WAR PRODUCTION

IF YOU work for Uncle Sam, you will have to solve your heating problem quickly and efficiently. There is no time for laying ducts, pipes, and for complicated installations. Uncle Sam can't wait.

Directherm Heaters are self-contained units. They can be installed in a jiffy, and they utilize 80% of the fuel energy—just the right thing for war production plants.

Our ability to serve you depends on your priorities.

AIRTHERM MANUFACTURING COMPANY

706 S. SPRING AVE. ST. LOUIS, MO.

Association Activities . .

New York State

The New York State Sheet Metal, Roofing and Air Conditioning Contractors' Association, Inc., has completed the first year of the State Fund Insurance Group with ample evidence of the wisdom of the association in sponsoring this group.

Partial statistics of the Group experience indicate losses below the theoretical normal for the operations insured. Final accounting will not be made until after September 1st—six months after the ending of the Group year.

Forty-three members have constituted the pioneer membership and the whole association owes them a debt of gratitude for their cooperation and consistent effort to put the Group well on the road to success. Since April 1st, four new members have been accepted.

At the annual convention in March, the Sheet Metal and Roofers Employers Association of Westchester joined in a body and the Executive Committee of the Insurance Group voted to accept these new association members as Group members should they wish to join. Already a considerable number of them have signified their intention of joining at the expiration of their present policies.

With its first and most difficult year behind it, with new members enlisted, and with the prospect of a good loss ratio for this first year, there is every reason to think that the Group will be instrumental in reducing accidents to the employees of its members and definitely cutting time loss, wage loss, and compensation insurance cost for the members themselves.

The illustration shown is one of a series of bulletins sent to each member each month calling attention to actual accidents occurring to members' employees. These bulletins are instrumental in making each employee acci-

THESE ARE *Your Customers!*



YOU'LL SELL THEM FASTER WITH HESS QUALITY EQUIPMENT

Defense workers, bankers, salesmen—these are your customers—people who appreciate the precision craftsmanship of the HESS line of quality heating equipment. You'll profit by HESS' financing and territory plan.

DEALERS: *Write TODAY for New 1942 Portfolio!*

IN 1942 FEATURE— selling, modernizing, replacements and repairing with

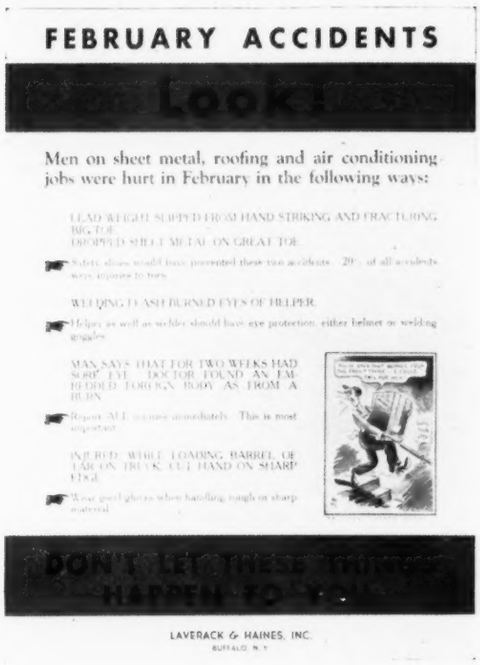
- ★ HESS Blower Filter Units
- ★ HESS Welded Steel Furnaces
- ★ HESS Automatic Oil Burners
- ★ HESS Automatic Coal Stokers

Quality Equipment from HESS Costs Less!

HESS WARMING & VENTILATING CO.

1211 S. Western Avenue CHICAGO, ILLINOIS

Founded 1873



dent conscious.

Safety ideas and devices developed by one member are made the property of all.

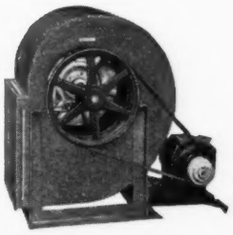
Application for membership should be made to Group Chairman Henry Steinhorst, 612 South St., Utica; to the management, Laverack & Haines, Inc., White Building, Buffalo; or to any of the Executive Committee—H. A. Daniel, Newburg; J. Arthur Heaphy, Syracuse; E. J. Kader, Buffalo; O. F. Kronenberg, Buffalo; William J. Schmitt, Rochester; Patrick Varden, Albany.

Clarence J. Meyer, State Secretary.

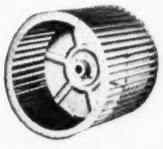
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● **BLOWERS FOR EVERY PURPOSE**
HY-DUTY Blowers, 9 ¾″ to 25″.
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Top and Bottom Motor Mounting.
Dual Units also available.



● **CENTER DISC WHEEL**
Double Inlet, Double Width.
Reinforced Center Disc.
Designed for Modern Air Conditioning and Heating Applications.
Sizes, 4 ½″ to 50″.

● **SINGLE INLET WHEELS**
For Oil Burner, Stoker, and Air Conditioning Applications.
Sizes, 4 ½″ to 50″.
Variety of Blade Lengths for each diameter.



● **ENGINEERING DATA**
Write for Catalogues showing complete Performance Data.
Experienced Engineering Department available to help solve your Air Handling Problems.

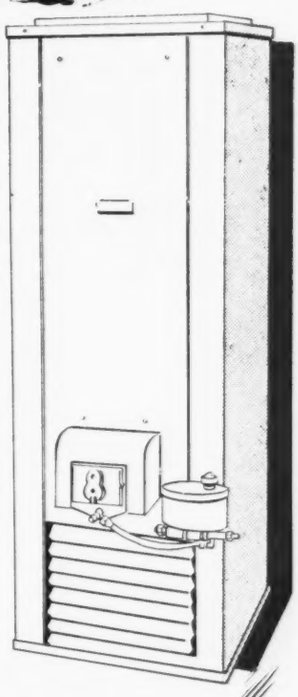
BLOWER DIVISION
SCHWITZER-CUMMINS COMPANY
1145 EAST 22ND STREET INDIANAPOLIS, U. S. A.

NEW OIL FURNACE FOR WAR HOUSING PROJECTS



DU 42 and DU 44 PROVIDE OIL HEAT AT LOW COST!

You can solve some of your toughest heating problems with the new H. C. Little DU (Defense Unit) because this oil-fired Furnace Burner Unit is compact—low-cost—and easily installed. It culminates 12 years' experience with furnaces especially adapted to small homes.



MANY USES

Models are available for location in the basement or on the first floor—concealed, recessed, or in the open. They may be used with or without ducts—with or without fans for increasing warm air circulation. Operation can be Manual or fully Automatic. Capacities range from 40,000 BTU output to 70,000 BTU output.

MANY ADVANTAGES

DU Furnaces' upright construction not only saves valuable floor space. It also makes a more efficient unit, in which a large volume of *warm* air is moved, instead of a small volume of *hot* air. Less stack draft is required, so lower chimneys may be used successfully. DU Furnaces are modern oil-burning units of pratical design and high efficiency, at such low cost that they come within the most restricted budget

YOU CAN BUY THEM NOW!

H. C. Little DU Furnaces are NOT AFFECTED by Limitation Order L-74 because they use a burner of the vaporizing type. With the correct Preference Rating you can buy DU Furnaces NOW. If you write today for full information, your request will get quick attention.

DU FURNACES ARE LISTED BY THE UNDERWRITERS' LABORATORIES

H. C. Little Burner Co.
SAN RAFAEL
CALIFORNIA

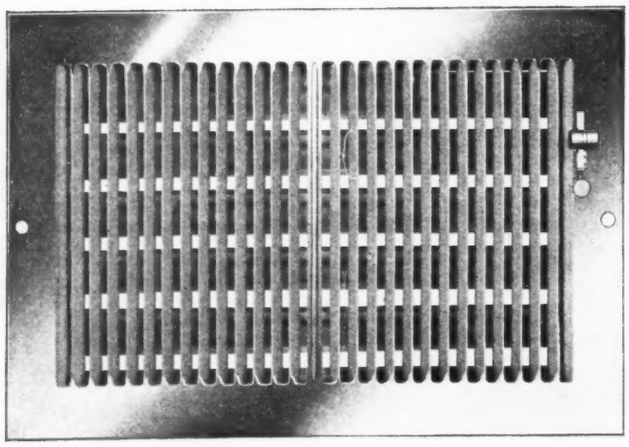
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Address_____

City_____

State_____





GOING MY WAY?

THE PLIAVANE REGISTER is a versatile performer! The air stream is instantly deflected up and down by back blades adjusted from the register face and sidewise by the face vanes. And yet the Pliavane is so inexpensive that it is the first choice for low-cost housing developments. It is also made in a single-valve model for use where sidewise deflection is not necessary.

THE PLIAVANE REGISTER

T & B

TUTTLE & BAILEY, Inc.

NEW BRITAIN, CONN.

NEW YORK CHICAGO PHILADELPHIA HOUSTON

Association Activities . . .

Fox Valley

The Fox Valley Sheet Metal & Furnace Contractors' Association held their third annual get-acquainted meeting at Carlson's Hall, 2nd Avenue, St. Charles, Illinois, on April 21.

Speakers for the evening were:

Fred Zabel, vice president, Merchants National Bank, Aurora
Ray Lorenz, president, Chicago Furnace Supply Company, Chicago
John P. Scheets, President, Messenger & Parks, Aurora

The subject: "What's Ahead in the Furnace and Sheet Metal Contracting Business."

Priorities affecting sheet metal and heating contractors were discussed and explained, after which a round table discussion was held.

There was a good attendance.

Fred R. Lamp, Secretary.

Milwaukee

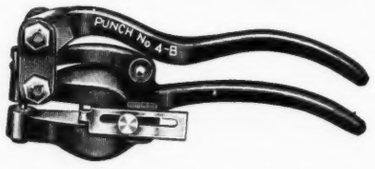
The monthly meeting of the Milwaukee Sheet Metal Contractors Association was held in Parlor "A" at the Hotel Schroeder, Milwaukee, on May 4

President Marth called the meeting to order at 8:30 and after the necessary routine business was disposed of, the balance of the evening was devoted to the important new rulings of the War Production Board, and priorities. Most of the members participated in the discussions. The Warm Air Heating and the Trade Relations and Policy Committees were instructed to study the cooperative suggestions offered by the Solid Fuel Institute and make recommendations as to the best method to be pursued on the unethical methods employed by some of the furnace manufacturers in selling direct to general contractors for the same and sometimes less money than to the installer.

Eschenburg, chairman of the Picnic Committee, will report his activities and arrangements for the holding of our forty-second annual picnic, either on Wednesday, July 15th or 22nd.

Paul L. Biersach, Secretary.

A REAL *Time Saver*



The No. 4B PUNCH

by *Whitney*

This punch is accepted by leading contractors and dealers as a real time-saver in the shop and on the job. Men who use it every day know it can't be beat for clean, fast punching. Has a capacity of 1/4" through 16 ga., weight 3 pounds, 8 1/2" in length, depth of throat, 2". Complete tool includes three punches and three dies of specified sizes with die adjusting key.

W.A. WHITNEY MFG. CO.

636 RACE ST. ROCKFORD, ILL.

Wilder's Specialty Items

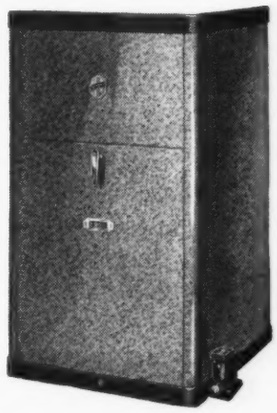
(*Continued from page* 58)

lined. For example, raw materials are wheeled to machines on one or more of the Wilder Mfg. Co. tables whose maximum capacity is 3 tons per unit. Every machine weighing under 2 tons is on wheels here. Move it anywhere, take the material to the machine or vice versa. In a well organized establishment such as this there have to be cost and accounting systems equal to the best anywhere. There's a blacksmith shop, a welding department (some 60 per cent of everything is welded by electric or gas). There is a tool-making department, for they make their own tools; there's a heat-treating and melting furnace, die hardening equipment, an engineering and a drafting department. All found on 10,000 sq. ft. of floor space.

This fabricator uses between 25 and 30 tons of sheet metal, mostly steel, monthly. The average sheeting gauge is 18, although gauges run from 10 to 26. Most items are finished by spray painting, although facilities for enamel baking also are available. But the customer classes solicited do not as a rule require baked finish. The Wilder organization does not "hide the light under the bushel." They advertise in national magazines, by form letter, by blotter, in fact, by all known media. Results speak for themselves, declared Mr. Derse.



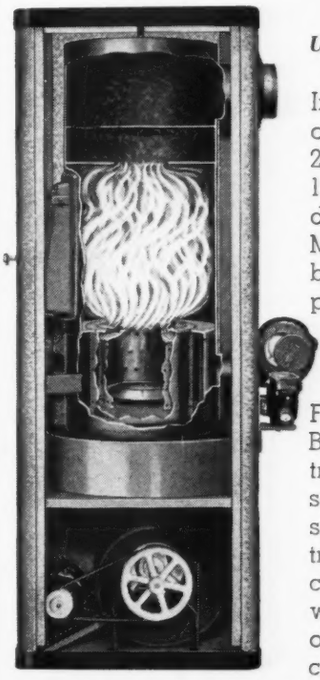
New MONOGRAM
VICTORY MODEL OIL BURNING FURNACE
For Low Cost Defense Home Heating



MODEL No. 73
Manually Operated Gravity Oil Furnace

Insulated cabinet, one - inch Fiberglas, 26¼x26¼x50¼ inches high. 18-gauge combustion drum with exclusive MONOGRAM double baffle feature, made possible by a shorter, wider flame of the MONOGRAM patented Turbulent Flame Burner. 53,000 BTU output, finished in brown ripple, heavy, durable construction.

MODEL No. 74—Same size and specifications as Model No. 73, illustrated above, except that it is equipped with the exclusive MONOGRAM Trimatic rheostat control which can be recessed in the floor above furnace or mounted on wall. This dial controls the oil input to the burner and controls the R.P.M. of blade fan, which provides mechanical draft and also boosts circulation and heated air. 63,000 BTU output.



MODEL No. 104
Upright Full Forced Air Oil Burning Furnace

Insulated cabinet, one - inch Fiberglas, 27x27x66 inches high. 18-gauge combustion drum with exclusive MONOGRAM double baffle feature made possible by a shorter, wider flame of the MONOGRAM patented Turbulent Flame Burner. 70,000 BTU output. Limit control and blower switch. AP thermostat with oil-air control. Separate mechanical draft blower which operates only on high fire. Rex air control and blower for forced circulation. Filters and humidifier, extra.

The Quincy Stove Mfg. Company
QUINCY ILLINOIS

WAGNER MOTORS

PLAY AN IMPORTANT PART IN OUR "ALL-OUT" WAR EFFORT

—they are now giving dependable service on refrigerating, air-conditioning, heating and ventilating equipment in defense industries, army and navy cantonments, ships, etc.

It takes good motors, and plenty of them, to keep equipment that contributes to the "all-out" war effort operating at top performance.

Wagner fully realizes this and is working day and night turning out more motors now than ever before, and is supplying these dependable motors wherever they are needed to help our country on to victory.

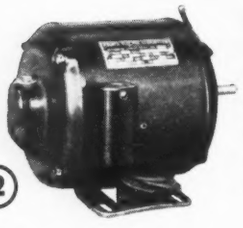
If the equipment you are manufacturing or installing is motor driven and essential in war production—consult Wagner. Twenty-five sales and service branches, located in principal cities, can be of help to you in selecting the right Wagner motor for the job.



1

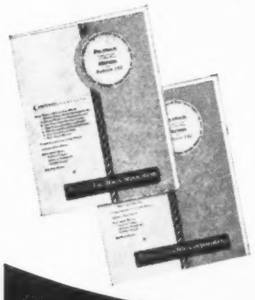
1. *Type RA, Repulsion-Start-Induction Motor. The ideal motor for heavy-duty single-phase applications. 1/8 to 15-hp.*

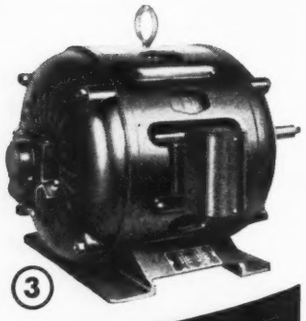
2. *Type M, Shaded-Pole Fan Motor. For fans and blower drives where the fan or blower drives are mounted directly on the motor shaft. 1/125, 1/80, 1/40 and 1/30-hp.*



2

3. *Type RP, Squirrel-Cage Polyphase Motor. Because of a simple construction they are low-priced, easily installed, and exceptionally sturdy and dependable. 1/6 to 400-hp.*





3

M42-13 *Send* FOR THESE FREE BULLETINS

Wagner Electric Corporation

6400 Plymouth Avenue, Saint Louis, Mo., U.S.A.

MOTORS · TRANSFORMERS · FANS · BRAKES

Kruckman— New House Program

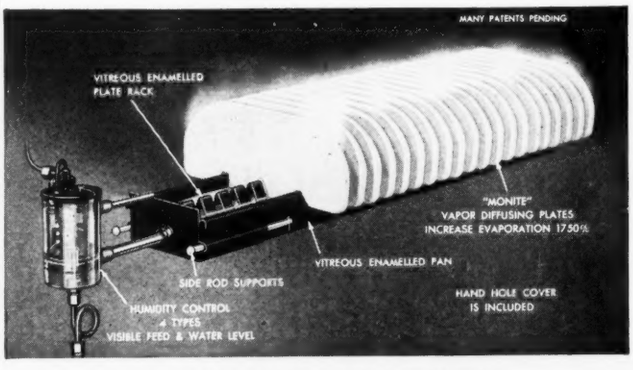
(*Continued from page 23*)

Most of these homes, as well as the dormitories, will be rented to workers. OPA has already set up a series of Defense Rental Areas and has imposed rent ceilings.

Coal Stoves Likely for Dormitories

Coal is indicated as the fuel to be used generally. In California oil floor furnaces have been planned; gas is suggested in States where gas may still be used. But the overwhelming majority of heating plants will be coal-fueled. The space heater, furnace, and the 3-way stove are expected to be most widely installed. The 3-way stove is explained by FPHA as the stove that provides heat, furnishes cooking facilities, and provides hot water heating. The dormitories are expected to have central coal-fired furnace heating plants with ducts or pipes made of plastics and similar substitutes. In many cases it is planned to use the space heater. Bob Thulman at FHA anticipates both forced warm air furnaces and gravity warm air furnaces, mainly coal-fired, will be used in dormitories and in the smaller dwelling units. He predicts that use of radiation heat equipment will be authorized where the equipment may be obtained from stock.

It should constantly be borne in mind that all agencies and elements in Washington emphasize that coal will be almost universally used. WPB Plumbing and Heating Branch, headed by W. W. Timmis, through his assistant Ronald Allwork, has emphasized that one of the major purposes of the modification



A HIGH STANDARD OF PUBLIC HEALTH MUST BE MAINTAINED

even though living standards have to be reduced.

The indoor air we breathe in winter must contain ample water vapor to hold down its abnormal avidity for moisture —a prime cause of 70% of winter illnesses and absences from defense work.

PROPER HUMIDIFICATION HEALTH-CONDITIONS THE AIR

By conserving health and fuel, it aids defense. Write to learn how you can help and be helped.

MONMOUTH PRODUCTS CO.

1933 East 61st St. Cleveland, Ohio

The Greatest Name in Humidification

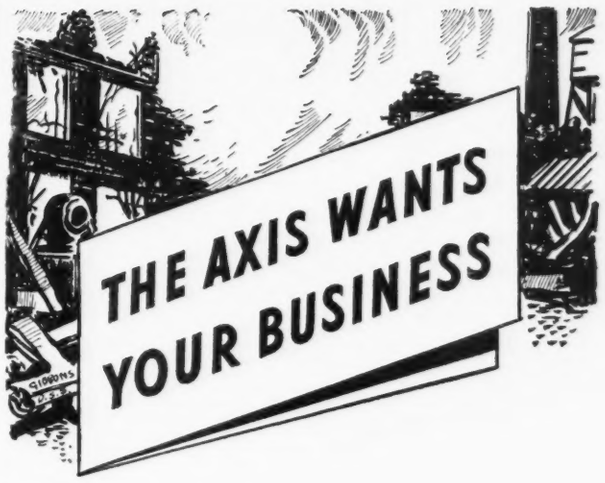
Order L-79, was to encourage the conversion of oil burners to coal burners. The WPB people are straining every collective muscle and nerve to popularize the idea of this conversion with the owners of oil burners on the Eastern seaboard. They are sponsoring publicity which underlines the suggestion that householders who are dilatory about converting their oil burning facilities will find themselves in the cold, literally and uncomfortably next winter. They seem to be amazed that there is such apathy on the part of most of the people in regard to their suggestions for conversion. Allwork repeatedly has said the sky is the limit in what the industry may use, barring actual manufacture, in speeding the cause of this conversion program. There appears to be every potential assistance for those who wish to engage in an effort to sell conversion service.

FHA Still Fighting WPB

Incidentally, as a footnote, it may be tucked away in some corner of your consciousness, that there may still be some tug-of-war between FHA, and similar private dwelling-building agencies, and WPB. It is quite obvious that FHA does not yet quite know where it fits, exactly, in the picture. It has authority to guarantee the loan of a huge sum of money under very moderate terms. But thus far it has not been able to secure any real clarification of its problems from WPB. There is every indication that FHA is unsure of the immediate steps in the future right ahead.

Recently WPB went on record that it would relax its rigid restrictions on home-unit building so far as the 100,000 projects are concerned that are more or less suspended for the lack of adequate Priority





THIS is more than a war of mechanical monsters clashing in the night . . . more than a war of production.

It is a war for markets—*your* markets! The Axis wants your business—wants to destroy it for once and all.

With so much at stake, there is no doubt you will want to do everything you can to meet this Axis threat. Two ways are open: Speed production and BUY BONDS. The only answer to enemy tanks and planes is *more* American tanks and planes—and your regular, month-by-month purchases of Defense Bonds will help supply them. Buy now *and keep buying.*

• HOW THE PAY-ROLL SAVINGS PLAN HELPS

When you install the Pay-Roll Savings Plan (approved by organized labor), you not only perform a service for your country but for your *employees.* Simple to install, the Plan provides for regular purchases of Defense Bonds through voluntary pay roll allotments.

Write for details *today!* Treasury Department, Section R, 709 Twelfth Street, NW., Washington, D. C.



U. S. SAVINGS

Bonds * Stamps

This space is a contribution to Victory by

AMERICAN ARTISAN

Randall BEARINGS

... adaptable to your specifications

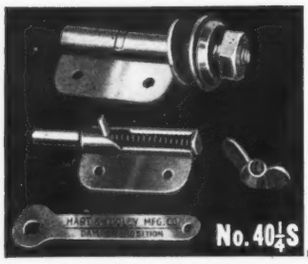
Speed is essential to increased production. You can avoid delays . . . cut delivery time . . . by standardizing on Randall self-aligning, self-lubricating Pillow Blocks. Randalls are available for delivery on your priority orders. Consult Randall engineers about adapting dependable Randalls for your equipment. Write today.



Flange or Side Mount Pillow Block

RANDALL GRAPHITE PRODUCTS CORP.
Dept. 611 609 W. Lake St. Chicago, Ill.

H&C DAMPER REGULATOR SETS



ECONOMY TYPE. Three ways to install: 1. With lock nut but without handle (for tamper-proof setting). 2. With handle and lock nut. 3. With handle and wing nut. Nut prevents damper vibration. Handle always indicates position of damper (Patent 2,146,142). Furnished with handy snap end bearing. Complete set in carton. Made only with ¼" bearings.

LIST PRICE.....No. 40¼S....$0.30



BRACKET TYPE. Nut holds damper securely, preventing vibration. Handle which indicates position of damper, may be left in place permanently or removed after adjustment (to prevent tampering). Snap End Bearing on ¼" size, Solid Bearing on ⅜" size. Each set individually packaged.

LIST PRICES.....No. 50¼.....$0.40
No. 50⅜ $0.60



DISK TYPE. Like all H&C sets, this set is equally adaptable to splitter or regular dampers. Snap End Bearing on ¼" size, Solid Bearing on ⅜" size. All parts are rust proofed. Complete set in carton.

LIST PRICES.....No. 80¼.....$0.40
No. 80⅜ $0.60

See your jobber or write for literature and sample.

HART & COOLEY MANUFACTURING CO.
HOLLAND, MICHIGAN · CHICAGO OFFICE: 61 W. KINZIE ST.

rights-of-way. WPB pledged itself to see that these 100,000 units, financed privately, may go ahead. But at the same time it emphasized that it would not approve allocation of materials or equipment for any further privately-financed defense housing projects. The declaration was heavily underlined. Even in Washington itself, WPB has uniformly delayed housing projects. There are many indications that the FHA type of housing will be reduced to a minimum, and that the dormitories (and draft of workers) will receive much support from White House influences.

This is generally contrary to the hopes and plans of John H. Blandford, Jr., head of the National Housing Administration, who is assumed to have much credit with the President. Blandford, like FHA, favors the more permnanent type of housing even if it must be swiftly built. Six weeks ago the Blandford program was all in the ascendancy. Today it seems to be sidetracked by the McNutt and the Army and Navy program. Apparently in housing WPB influences are aligned with the McNutt-Army-Navy group. It is a natural alliance. WPB strives to save materials and wishes to put speed in production. Wherever there is now a delay it is chiefly due to lack of workers, and some of the lack in working personnel, in turn, is due to lack of housing. It is logical for WPB and McNutt-Army-Navy to feel that quickly built, more or less sketchy barrack-type housing, to shelter drafted workers, will save materials, labor, and transportation facilities, and will make housing more rapidly available than the permanent housing programmed by the Blandford-FHA group. Early in June the President appears to find the answer with the McNutt-Army-Navy group. At the same time the other group have



Write for Our Special "DEFENSE HOUSE CIRCULAR"

VITROLINER—THE SUPERIOR CHIMNEY offers many advantages in Defense House Chimney construction not obtainable in any other chimney. Fourteen years of practical experience in the field have produced in Vitroliner a superior, more dependable, uniform chimney than was ever before thought possible.

Write for details to

VITROLINER -the Superior Vent Pipe

CONDENSATION ENGINEERING CORPORATION

PHONE CALUMET 4362
2515 ARCHER AVENUE • CHICAGO, ILL. •

been doing business here ever since the New Deal came to Washington, and they have by no means surrendered. It is quite possible the plan will be changed again, as it has changed repeatedly since June, 1941. Congress is so worried by the lack of housing in the Capital that it is considering a Bill legalizing use of a large part of the beautiful parked grounds around the Capitol itself as a site for building of war housing.

Union Wages Frozen for Duration

Union construction wage rates were frozen for the duration on the basis of the scale as it existed July 1, 1942. The agreement was made by the A. F. of L. Building Trades Department, and by the Government represented by Army, Navy, NHA, RFC, and U. S. Maritime Commission. Neither private employers nor CIO participate in the deal. A new Wage Adjustment Board was created, headed by Assistant Secretary of Labor Dan W. Tracy, formerly an officer of A. F. of L. electrical workers' union. Robert Byron, A. F. of L. Sheet Metal Workers; Harry Bates, Bricklayers; and John Coyne, president, A. F. of L. Building Trades Department, and three Government representatives are the other members of the Board. The Board will not approve increases unless wage rates are out of line as untimely, or locally, or by reason of unusual conditions. WPB is left out of the agreement, and the labor stabilization negotiated at Detroit recently is ignored. It is generally assumed here there may be still other agreements that will supersede the latest one. The President has not yet approved any formula, formally.

Coming—In July Mr. Kruckman will explain the old house repair and maintenance possibilities as Washington sees the opportunities for our industry.



All firepots need the protection of a Fireline lining. Cracked firepots can be lined and thereby avoid the installation of new castings. Good castings should be lined to protect them and improve combustion.

FURNACE PROFITS NOW

Every furnace owner is a prospect for a Fireline lining. It saves fuel... It protects firepot castings... It reduces soot and ashes. Fireline is installed without taking down the furance—in a few hours. A dandy job for your helpers.



Write today for details on how to get this profitable business now.

FIRELINE
Stove & Furnace Lining Co.
1816 Kingsbury Street, Chicago, Ill.

BUY WHITNEY-JENSEN
METAL-WORKING MACHINERY and HAND TOOLS
for LONG LIFE and ACCURACY



No. 72 SERIES
POWER SQUARING SHEAR
36" and 42" sizes
14 and 16 gauge

Quick in action, easy to operate, compact in size! This new WHITNEY-JENSEN Power Squaring Shear offers many advantages to sheet metal shops. One outstandingly distinctive feature is the simple, accurate, and positive blade adjustment. Another is the high speed of the machine—180 strokes per minute. Write today for a copy of our new circular, which gives full description and specifications of the three models available.

WHITNEY METAL TOOL COMPANY
91 FORBES STREET • ROCKFORD, ILLINOIS

EXPERIENCE

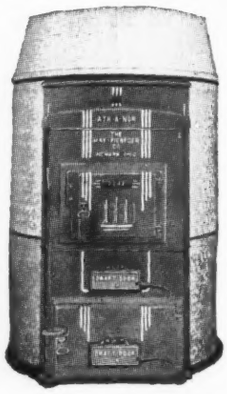
The long experience of the Quiet May organization, its engineers and production experts, insures the sustained superiority of Quiet May oil heating equipment. Quiet May ownership is an experience in satisfaction!

May Oil Burner Corp.
Baltimore, Md.

"Suppliers to Uncle Sam"

QUIET MAY
OIL HEATING EQUIPMENT

50 YEARS OF LEADERSHIP
The Time-Tested
ATH-A-NOR



Furnaces, like any other piece of merchandise, are only as good as the people who make them. The May-Fiebeger Company has been making the ATH-A-NOR Furnace illustrated for over fifty years, and the fact that it will perform with unusual efficiency and economy is backed up by hundreds of satisfactory installations.

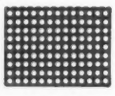
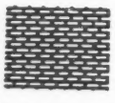
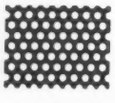
If you've been looking for a fast-moving, top performing gravity furnace to round out your line, investigate the ATH-A-NOR now! A postcard request will bring literature.

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. . . write today for further information!

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MAY-FIEBEGER COMPANY
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PERFORATED METALS ARE ESSENTIAL

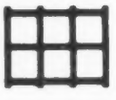
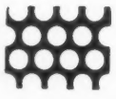
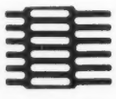

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Our range of sizes is great and we aim to meet the most exacting demands.

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Write us for information.


The Harrington & King PERFORATING Co.
5649 Fillmore St., Chicago, Ill. New York Office, 114 Liberty St.

On Our Industry's Front

(Continued from page 26)

cants, and constitutes the basis for the new, simplified instructions.

Be sure to get the new forms and instructions before you file your next report.

Because these standard applications under the Production Requirements Plan have been simplified by the new instructions, use of the special PD-25X application blank for firms with an annual business of less than $100,000 a year were discontinued May 23.

◆

Copper Products Further Restricted

WAR Production Board on May 7 prohibited further the use of copper and its alloys, including brass and bronze, in an additional hundred-odd civilian products; curtailed other uses after June 15, and ordered a number of other restrictions designed to conserve supplies of the red metal.

The action was taken in a revision of Order M-9-c, originally issued on October 21, 1941, and has been amended frequently.

The new order maintains the List "A" of the previous order in substantially the same form. A new list, "A-1", is added. Items on this list must not be manufactured, assembled or finished after May 31.

Beginning May 7, manufacturers may not further process copper, brass or bronze plate, sheet, strip, rolls, coils, wire, rod, bar, tube, pipe, extrusions, ingots or powder to make items on List "A-1" if the materials are in substantially the same form in which they were acquired.

Manufacture with copper of every article not on Lists "A" or "A-1" must stop on June 15 if any copper is used which was obtained before February 28, 1942, unless the article is being made to fill a purchase order rated A-1-k or higher, or its manufacture has been specifically authorized by an application filed on Form PD-426.

If the raw material has been obtained since February 28 and is being used to make articles not on the lists, it is the attitude of WPB that the copper was properly allocated and no further restriction is necessary.

The previous exemption for parts to conduct electricity is removed. If an article appears on List "A" or List "A-1", use of copper in its manufacture is prohibited for any purpose, unless a specific exception is made in the order.

Copper plating of all articles mentioned in the lists also is prohibited after May 31.

The restrictive provisions of the order do not apply to Army, Navy or Maritime Commission contracts, where the contracts call for copper, brass or bronze, until August 1.

Form PD-426 is provided to permit manufacturers of items not specifically prohibited to request permission to continue after June 15. It is not an appeal from the order in the usual sense, but an opportunity to review specific cases. It is the intention to grant such request when the circumstances justify this action.

PD-167, as revised, continues to be the regular appeals form.

LAMNECK
PRODUCTS, INC.

Middletown, Ohio

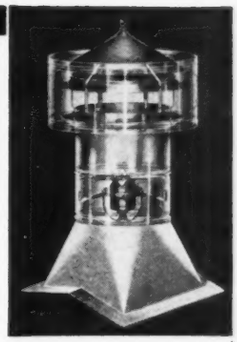
Manufacturers and Fabricators of SHEET METAL PRODUCTS

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Did you know that

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damper regulators

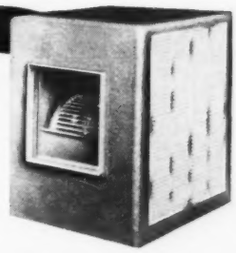
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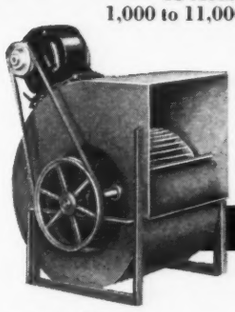
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2947 NO. 30TH STREET ★ ★ ★ MILWAUKEE, WISCONSIN

AIR COOLERS

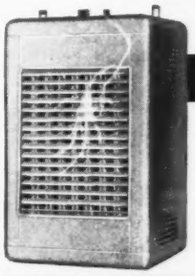
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Four sizes

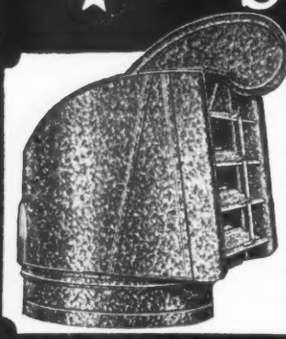


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Floor and dual register models
Three sizes
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● Industry's quality ventilator for a third of a century. You can honestly promise *more capacity for the size of ventilator used* and a lifetime of *trouble-free operation.*

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AIR CONDITIONING UNITS

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They're heat controlled! That's your greatest assurance that the heat produced by your customers' furnaces will be properly tempered with moisture—and what a vast difference that will make in building goodwill and sales for you.

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LARGE, STREAMLINED INLET MEANS MINIMUM LOSSES DUE TO ENTRANCE FRICTION OR EDDIES

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MILL EXHAUSTER

"Designed and Built by the Pioneer"

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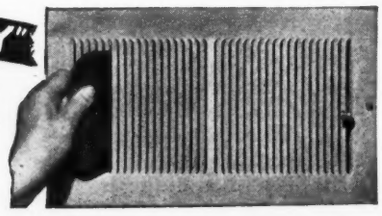
58 Pounds Of Duct Work

(Continued from page 37)

winter on demountable houses. In the demountable house program, circulating heaters and floor furnaces were advocated because they saved critical material needed for the heating plant. A checkup showed that a space heater rated for four exposed walls, 40,000 Btu output, gravity air flow, would weigh over 220 pounds and cost about $123.00. Even more interesting, such a heater would have to stand exposed in the hall corner of the living room to get a nearly central position and heat would have to follow "trained arrows" to reach the rear bedroom or the kitchen-dinette. The gas-fired, forced air furnace used in these Buffalo houses weighs only 360 pounds and was installed for less than $100 additional—and just check the many advantages.

Sectional Garage Works makes a substantial variety of these ready-to-erect homes. The construction is not ready-cut and is not demountable in every sense, but each structure consists of shop-made-in-jigs sections which are fastened together on the job. For very low cost, these houses are offered in "single construction" meaning novelty siding nailed directly on the studs (suitable for summer cottage use) but for year-round occupancy "double construction" (1x8 white pine

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LOW COST
EFFICIENT
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PERFECT FOR DEFENSE PROJECTS

STANDFORATED
PERFORATION OF ALL METALS

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PEERLESS LINE GETS CONTRACTS FOR VICTORY HOUSING and REPLACEMENTS



● Peerless dealers are fortunate at this time, in having a line of furnaces and air conditioners to sell which includes a variety of units wide enough to meet all present day requirements. Many sizes. For all kinds of fuel.

Our stock of repair parts, for all makes of furnaces is one of the largest in the Mid-West. Orders filled promptly with liberal profits for dealers. Write for proposition.

PEERLESS FOUNDRY CO., 1853 Ludlow Ave., Indianapolis, Ind.

siding on Celotex or wood sheathing) is recommended. The houses described here for defense workers are double construction. Erected in place, prices range from $435 to $1,395—surely in the range of "low-cost" desired for war industry housing.

◆

Earth-Floor Plenums

(*Continued from page 43*)

into the space, else some return will be more active than others and may thereby cause drafts along the floor; in houses of more than one story care should be taken to space returns so that the weight of a column of cold air from usptairs will not be placed upon a lower floor return opening; earth-floor plenums are logical if care is taken to provide for balancing return air distribution all over the plenum.

◆

Restaurant Cooling Maintenance

PRIORITY assistance for the maintenance of refrigerating equipment in stores and restaurants has been granted by Amendment No. 2 to Preference Rating Order P-100, issued March 9.

Under the terms of Order P-100, a preference rating of A-10 is assigned to materials for repair and maintenance of equipment for specified industries and operations. Today's amendment includes the maintenance of refrigerating equipment in stores and restaurants among the uses for which this preference rating may be assigned.

RYERSON CERTIFIED STEELS

10 STRATEGICALLY-LOCATED PLANTS

Principal products include—Alloy Steels, Tool Steels, Stainless Steel, Hot Rolled Bars, Hoops and Bands, Beams and Heavy Structurals, Channels, Angles, Tees and Zees, Plates, Sheets, Cold Finished Shafting and Screw Stock, Strip Steel, Flat Wire, Boiler Tubes, Mechanical Tubing, Rivets, Bolts, etc. Write for Stock List. Joseph T. Ryerson & Son, Inc. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

TRY US FOR QUICK DELIVERY

Sheet Metal Fabricating

MACHINES & TOOLS

Write for Catalog and New Bulletin No. 53

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THE QUALITY OF PAYNEHEAT EQUIPMENT IS STANDING USERS IN GOOD STEAD TODAY!

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ON ACTIVE DUTY!

—BUT STILL AT YOUR SERVICE!

Because R. & G. Registers and Grilles are reporting for duty on scores of essential war jobs, our products for civilian use are necessarily limited. However, our officers are always available for consultation on any problem within our scope.

REGISTER & GRILLE MANUFACTURING CO., Inc.

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Get the Facts About

SAL-MO ASBESTOS DUCTBOARD

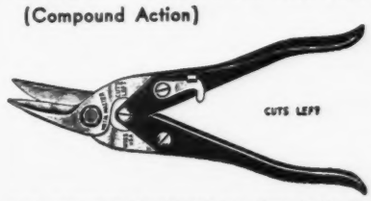
The New Metal Saving Material for Cold Air Return Ducts. Fireproof . . . Moistureproof. Fully approved.

SALL MOUNTAIN COMPANY

176 W. Adams St. Chicago

WISS "METAL-MASTER" SNIPS

(Compound Action)



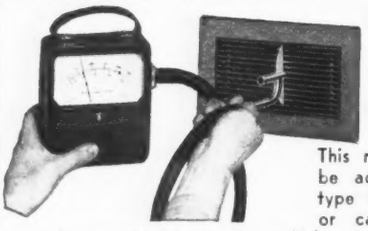
"TWICE THE WORK WITH HALF THE EFFORT"

TWO MATCHED PATTERNS M1 (Cuts Left) M2 (Cuts Right) Cut circles, squares and any irregular patterns on Stainless, Dural and Monel Metals with the greatest of ease. Jaws of wear-resisting Manganese Molybdenum Steel. Handles hot-pressed from tough Chrome Vanadium Steel. Nickel steel bolts and nuts to Government specifications. All parts interchangeable. Detachable rubber handle grips at slight extra cost.

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ESTABLISHED 1848 NEWARK, N. J.

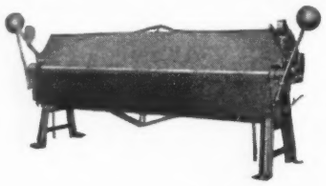
NOW! ACCURATE AIR VELOCITY MEASUREMENTS at INTAKE GRILLES!



This new jet attachment can be added to existing Tube-type Velometers now in use, or can be purchased with other standard jets and new Velometers.
The new intake grille jet is offered only in the spot type since the center reading only has proven to be sufficiently accurate for all commercial purposes. Write for information.

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WARM AIR FURNACES
AIR CONDITIONING UNITS

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Repair Parts
FOR ALL HEATING UNITS

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STOVE FURNACE BOILER
OIL STOVE RANGE

A. G. BRAUER SUPPLY CO.
Distributors of All Heating and Air Conditioning Equipment
2100 Washington Ave. St. Louis, Mo.

L-79
Amended

(*Continued from page 21*)

ations thereof, which has been specifically authorized by the Director of Industry Operations pursuant to an application for authority to "Begin Construction," in accordance with Limitation Order No. L-41.
Dated ———— Signed————."
This statement shall constitute a representation to the War Production Board and to the person supplying such equipment that the stated facts are true and that the listed equipment will be used for the purpose stated;

(6) any person may sell and deliver any cooking stove, heating stove, and/or water heater concerning which the purchaser has made the following signed statement to him listing all equipment to be sold or delivered:
"The following equipment————
is required by me for use in my place of residence, in which there is no equipment of the type listed. Further, I do not have available any other equipment which I can use in my place of residence instead of the above listed equipment.
Dated———— Signed————."
This statement shall constitute a representation to the War Production Board and to the person supplying such equipment that the stated facts are true and that the listed equipment will be used for the purpose stated;

(7) any person may sell and deliver any New Metal Plumbing Equipment or New Metal Heating Equipment pursuant to specific authorization of the Director of Industry Operations on Form PD-423; and

(8) nothing in this Order shall be construed to limit the sale or delivery of any equipment which is to be used for the purpose of converting oil burning equipment or gas burning equipment to coal burning equipment.

(c) *Records.* (Usual two years)
(d) *Audit and Inspection.* (Usual)
(e) *Reports.* (Usual)
(f) *Violations.* (Usual)
(g) *Appeals.* (Usual)
(h) *Applicability of Other Orders.* Insofar as any other Order issued by the Director of Industry Operations, or to be issued by him hereafter, limits the use of any material to a greater extent than the limitations imposed by this Order, the restrictions of such other Order shall govern, unless otherwise specified therein.
(i) *Applicability of Priorities Regulation No. 1.* (Usual)
(j) *Routing of Correspondence.* All reports to be filed, appeals, and other communications concerning this Order shall be addressed to War Production Board, Washington, D. C., Ref: L-79."

This Amendment shall take effect immediately.
Issued this 23rd day of May, 1942.

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WITH AN
ACME "Hot Spot" WELDER



Proven utility for over 26 years in thousands of sheet metal fabricating plants.

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BARBER
Gas Pressure
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Sizes 1/4" up
Certified by
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Write for Prices

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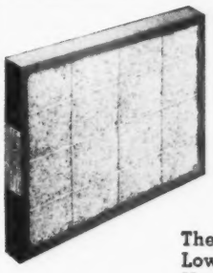
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Your work will proceed faster and neater when you use Bremil Portable Shears on the job or in the shop. Write today for literature showing complete line. Prompt shipment can be made from stock.

ALL-ALLOY No. 2 cuts up to ¼" steel plate.
ALL-ALLOY No. 1 cuts up to No. 11 gauge strip or sheet.
Special blades may be obtained for shearing stainless steel.

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AXIOM AIR FILTER

The result of fifteen years experience
Lower in cost — Higher in quality
Huge dust capacity—low resistance
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Order now

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EVERYWHERE



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Main Office & Factory
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New and improved "EX" Fans are now available in standard sizes from No. 15 to No. 80 and from 200 to 30,000 CFM Capacity with pressures up to 15" W.G. These fans are commonly used for exhaust problems to handle dust, fumes, shavings, etc., but can be adapted for forced draft service.

"EX" Fans are furnished in all standard arrangements of the N.A.F.M. The design is such that it can be easily modified to suit special assemblies, thus "EX" Fans are ideal for resale purposes, as part of factory assembled units.

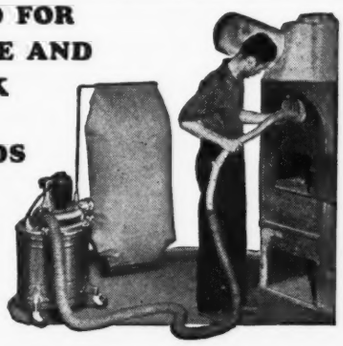
Write us about your problems. Send for Bulletin No. EX-41

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1817 South 66th Street Milwaukee, Wis.

BE PREPARED FOR MAINTENANCE AND REPAIR WORK
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GRAND RAPIDS FURNACE CLEANER

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Write for Details



DOYLE VACUUM CLEANER CO.
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BUFFALO'S *Best Located Hotel*
BUT THAT'S NOT ALL!

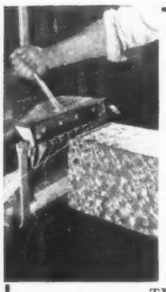


At Hotel Lafayette you're in the heart of Buffalo's shopping, theatre, and business district. Important, sure. But you also enjoy the prestige and comfort of a truly fine hotel—excellent rooms, restful beds, superb food. Moderate rates: Single, $2.75 up; double, $4.50 up. Special rates for 4 or more. Write for Folder I-10.

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SAVES

MORE TIME than any other machine used on square pipe work, per joint of pipe.

USABLE MORE OFTEN, per job, because SMITH'S CLEAT BENDERS EDGE THE PIPE AND MAKE drive cleats to join them together.

TWO SIZES

No. 12 twelve inch — No. 18 eighteen inch

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SKYLIGHT and VENTILATOR

Constructed of quality materials to give greatest amount of light and maximum strength of construction. Ventilator is absolutely water tight. Pivoted metal dampers will be included with ventilators, so hung that normally they will be closed. Skylights can be constructed to any size required.

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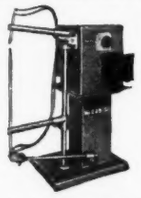
or . . . .

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In this day of all-out war effort many plants are seeking equipment that may be standing idle in other shops. If you need equipment, American Artisan classified section will put your desires before the logical people to supply it. If you have something to sell—American Artisan Service Section will put your advertisement before many prospective buyers. In the Warm Air and Air Conditioning industry American Artisan is "Tops" in reader interest. Your products advertised in these columns will bring many inquiries and result in many sales.

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Electric welding equipment of every description to weld from a watch case to a door. Special or standard SPOT WELDERS from ¼ to 500 K.V.A. A.C. Arc Welders from 100 to 400 Amps. We invite contract Spot Welding in large or small quantities.

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Drill Concrete with the "Do-All" Combination Electric Hammer and Drill. Set expansion bolts 10 to 20 times faster than with hand tools. Drills concrete, brick, stone, metal, wood. Easy to maintain. Weighs 15 lbs. Drills to 1⅝" in concrete. 2400 blows per min. Bulletin 400. Phone Austin 9866.

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Two standard fluxes for all soft soldering. Safe, quick, certain. Buy them at your jobbers or write us if he cannot supply you.

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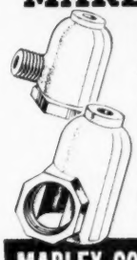
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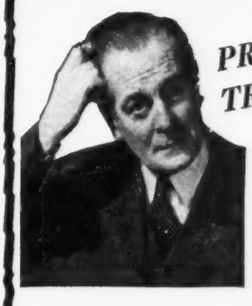
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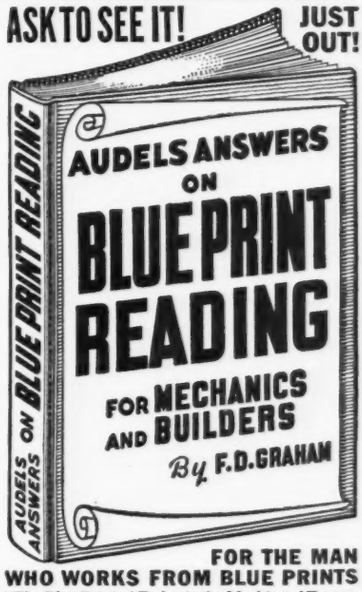
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Index to ADVERTISERS

Acme Electric Welder Co. 91
Adams Co., The 71
Aerofin Corp. 12
Air Control Products, Inc. ..... *
Air-Maze Corp. ..... *
Airtemp Division, Chrysler Corp. .....
.....Inside Back Cover
Airtherm Mfg. Co. 78
Allen Co., Inc., L. B. 93
Allen Corp. ..... *
American Air Filter Co., Inc. ..... *
American Blower Corp. 28
American Brass Co. 13
American Coolair Corp. 77
American Radiator & Standard
Sanitary Corp. ..... *
American Rolling Mill Co., The 59
Audel Publishers 93
Auer Register Co. 3
Automatic Humidifier Co. 88

Barber Gas Burner Co., The 91
Bard Mfg. Co. ..... *
Bayley Blower Co. 91
Behr & Sons, Inc., Joseph ..... *
Benson Co., Inc., Alex R. 92
Berger Bros. Co. 91
Bethlehem Steel Co. 10
Blocksom & Co. 91
Brauer Supply Co., A. G. 90
Bremil Mfg. Co. 91
Burt Mfg. Co. 87

Carnegie-Illinois Steel Corp. 46
Century Electric Co. ...Inside Front Cover
Cheney Co., The ..... *
Chicago Filter Co. 65
Clarage Fan Co. 83
Conco Corp. 76
Condensation Engineering Corp. 84
Crescent Tool Co. 9

Detroit Lubricator Co. ..... *
Dewitt Hotels 92
Diamond Mfg. Co. ..... *
Doyle Vacuum Cleaner Co. 91
Dreis & Krump Mfg. Co. 90

Eisler Engineering Co. 92
Electric Vacuum Cleaner Co., Inc. .. *
Elgo Shutter & Mfg. Co. ..... *

Field Control Division 81
Fireline Stove & Furnace Lining Co. .. 85
Fitzgibbons Boiler Co., Inc. ..... *
Frederick Iron & Steel Co. ..... *
Front Rank Furnace Co. ..... *

Gehl Bros. Mfg. Co. ..... *
General Blower Co. 93
General Controls ..... *
General Electric Co. ..... *
Gerett Corp., M. A. 87
Grant Wilson, Inc. 75

Harrington & King Perforating Co. .. 86
Hart & Cooley Mfg. Co. .....7 and 84
Hart & Crouse Corp. ..... *
Henry Furnace & Foundry Co., The .. 8
Herco Oil Burner Corp. ..... *
Heremetal Co., The ..... *
Hess Warming & Ventilating Co. 78
Hussey & Co., C. G. ..... *

Hg Electric Ventilating Co. ..... *
Illinois Testing Laboratories, Inc. .. 90
Independent Register Co., The ..... *
International Heater Co. ..... *
International Nickel Co., Inc. 5
Interstate Machinery Co. 93

Johnson Co., S. T. ..... *

Lafayette Hotel 91
Lamneck Products, Inc. 87
Lau Blower Co. ..... *
Leader Iron Works, Inc. ..... *
Libert Machine Co. ..... *
Lincoln Electric Co. ..... *
Little Burner Co., Inc., H. C. 79
Lockformer Co. 73

Maid-O'-Mist, Inc. ..... *
Maple City Stamping Co. ..... *
Marley Co., The 93
Marshalltown Mfg. Co. ..... *
May-Fieberger Co. 86
May Oil Burner Co. 85
McDonnell & Miller ..... *
Mercoid Corp., The ..... *
Meyer & Bro. Co., F. ..... *
Meyer Furnace Co. ..... *
Milcor Steel Co. ..... *
Minneapolis-Honeywell Regulator Co. *
Monmouth Products Co. 82
Morency-Van Buren Div., Scovil
Mfg. Co. ..... *
Morrison Steel Products, Inc. ..... *
Morrison Products, Inc. ..... *
Mueller Furnace Co., L. J. ..... *

National Super Service Co. ..... *
Niagara Machine & Tool Works 76
Norge Heating & Conditioning Div.,
Borg. Warner Corp. ..... *
Northwestern Stove Repair Co. 67

Olsen Mfg. Co., C. A. .....88 and 90
Osborn Co., J. M. & L. A. 16
Owens-Corning Fiberglas Co. 17

Pacific Gas Radiator Co. ..... *
Parker-Kalon Corp. 60
Payne Furnace & Supply Co. 89
Peerless Electric Co., The ..... *
Peerless Foundry Co. 88
Penn Electric Switch Co. 6
Perfex Corp. ..... *
Premier Division, Electric Vacuum
Cleaner Co., Inc. ..... *
Premier Furnace Co. ..... *

Quincy Stove Mfg. Co. 81

Randall Graphite Products Corp. 84
Register & Grille Mfg. Co. 89
Republic Steel Corp. .....14 and 15
Research Products Corp. ..... *
Rock Island Register Co. ..... *
Round Oak Co. ..... *
R; bolt Heater Co. 18
Ryerson & Son, Inc., Joseph T. 89

Sall Mountain Co. 89
Schwitzer-Cummins Co. 79
Scovill Mfg. Co. ..... *
Scully Steel Products Co. 46
Skilsaw, Inc. ..... *
Skuttle Sales Co. ..... *
Smith, E. R. 92
Southwest Hotels ..... *
Standard Stamping & Perforating Co. . 88
Stanley Electric Tool Div., The
Stanley Works ..... *
Stewart Mfg. Co. ..... *
Sturtevant Co., B. F. 88
Superior Sheet Steel Co. ..... *
Surface Combustion Corp. ..... *
Swarthwout Co. 88

Torrington Mfg. Co. ..... *
Tuttle & Bailey, Inc. 80

U. S. Air Conditioning Corp. ..... *
United States Gypsum Co. ..... *
U. S. Register Co. ...Outside Back Cover
U. S. Steel Corp. 46
Utility Fan Corp. 87

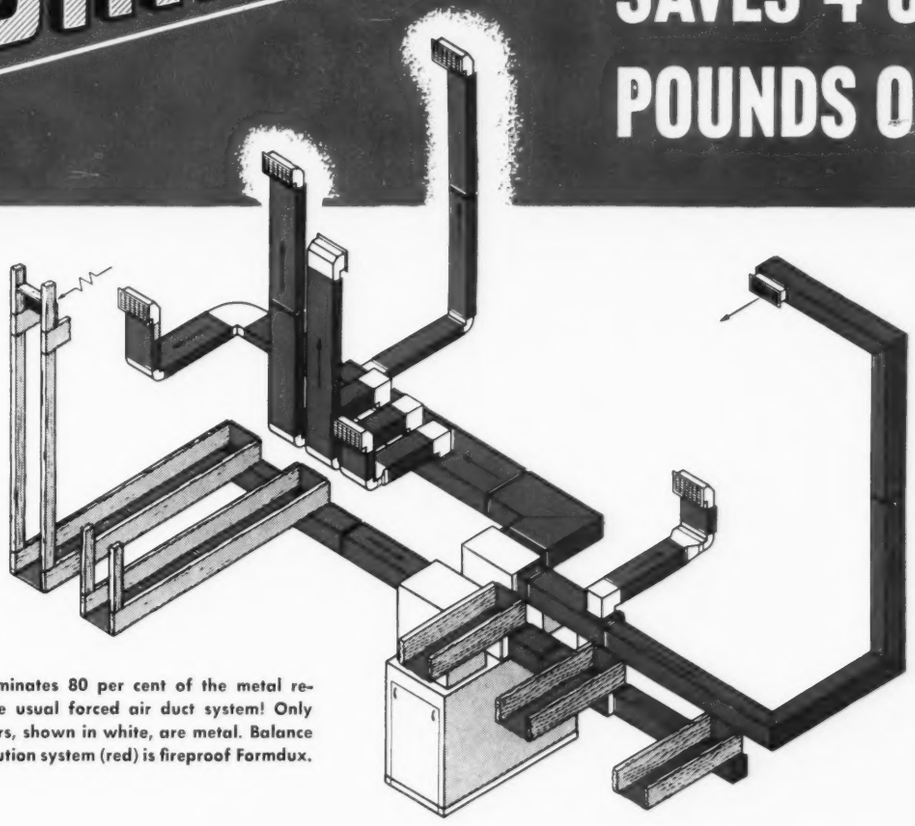
Victor Electric Products, Inc. ..... *
Viking Mfg. Corp. ..... *

Wagner Electric Corp. 82
Ward Machinery Co. 89
Waterloo Register Co. ..... *
Waterman-Waterbury Co., The ..... *
Weirton Steel Co. ..... *
Westinghouse Electric & Mfg. Co. .... *
White Mfg. Co. ..... *
White-Rodgers Electric Co. ..... *
Whitney Mfg. Co., W. A. 80
Whitney Metal Tool Co. 85
Williamson Heater Co. ..... *
Willis Steel Corp. 92
Wilson, Inc., Grant 75
Wise Furnace Co. 74
Wiss & Sons Co., J. 89
Wodack Electric Tool Corp. 92

Zim Filter Co. 11
Zink Co., John 72

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